

Instructional Planning & Delivery

2009

Instructional Planning & Delivery

Table of Contents

Introduction	1
Chapter One	2
Start With Standards	
I. The Rationale For Standards-Based Education	3
II. How To Read The Standards	4
Chapter Two	10
Student Assessment: Measuring Progress Toward Your Goals	
I. Summative Assessment	11
II. Diagnostic Assessment	27
Chapter Three	35
Long-Term Planning	
I. The Purposes Of A Long-Term Plan	36
II. The Four-Step Long-Term Planning Process	37
A. Use The Standards To Determine Learning Goals	37
B. Group Learning Goals Into Units	39
C. Logically Order The Units And Plot Them On The School Calendar	44
D. Continually Adjust Your Plan	46
III. FAQ On Long-Term Planning	48
Chapter Four	51
Unit Planning	
I. Develop Your Unit Vision	53
II. Create Your Summative Unit Assessment	57
III. Translate Your Learning Goals Into Lesson Objectives	58
IV. Sequence Your Content And Scaffold Your Lesson Objectives	64
V. Schedule Your Objectives On The School Calendar	66

VI.	Create Your Beginning-Of-Unit Diagnostic Tool	67
VII.	Create A Tracking System For Your Objectives	69
VIII.	Continually Adjust Your Plan	71
Chapter Five		
Lesson Planning, Part I: Standard Lesson Structure		74
I.	The Opening – What Students Will Learn And Why It Is Important	76
II.	Introduction To New Material – The Explicit Explanation	80
III.	Guided Practice	85
IV.	Independent Practice	92
V.	The Closing – Stressing Connections And Checking For Understanding	98
Chapter Six		
Lesson Planning, Part Ii: Instructional Methods		102
I.	Grouping Strategies	103
II.	Whole Group Methods	105
III.	Small Group Permutations	117
IV.	Self-Directed Independent Work	123
V.	Colleagues In Class – Effectively Managing Assistants And Aides	126
Chapter Seven		
Lesson Planning, Part Iii: Making Effective Instructional Choices		129
Chapter Eight		
Differentiation		142
I.	Differentiating Instruction	143
II.	Supporting Students With Special Needs	150
III.	Supporting English Language Learners	162
Grading Supplement		
Recording Results Effectively		169

Instructional Planning & Delivery

Toolkit ✂

Internet Links To Regional And National Standards	1
Standardized Tests In Your Region	3
Performance Assessments	7
Assessment Plan – Guiding Questions	12
Considerations For Assessments Question Types	14
Guidance For Creating Valid Assessment Items	15
Protocols For Evaluating Student Work	18
Rubrics	19
Math Diagnostic	22
Sample Long Term Plan	23
Sample Long Term Plan, Mapped On A Calendar	34
Remediation Strategies	35
Sample Unit Plan And Assessment	36
Designing Lesson Objectives That Address The Appropriate Cognitive Level	50
Five Step Lesson Plan Framework	52
Alternative Lesson Plan Formats	53
Methods For Opening A Lesson	60
Guide To The American Sign Language Alphabet	62
Methods For Closing A Lesson	63
Graphic Organizers	65
Analogies	69
Brainstorming	70
KWL Charts	71
Bloom’s Taxonomy And How To Write Higher And Lower Order Questions	72
Guidelines For Group Work	74
Around The Clock Partners	75
Think-Pair-Share	77
Differentiated Strategies Glossary	78
Sample IEPs	81

Sample IEP Goals	87
Accommodations And Modifications Form	93
Resources For Serving Students With Special Needs	94
Various Programs For English Language Learners	95
A Brief History Of ESL And Bilingual Education	96
ESL And Bilingual Resources On The Web	98
Sample Grading Systems	102
Sample Computerized Gradebook	110
Sample Mastery Tracking Sheet	111
Student's Mastery Checklist	112
Charts That Track Progress Over Time	113
Sample Report Card	115
Additional Resources	117

Instructional Planning & Delivery

Related Readings

“The Art Of Questioning” <i>By Dennis Palmer Wolf</i>	1
“Restructuring In The Classroom: Teaching, Learning, And School Organization” <i>By Richard Elmore Et Al</i>	8
Activity 1: Trying It Out <i>By The Association For The Supervision Of Curriculum Development (ASCD)</i>	11

Instructional Planning & Delivery

Introduction

As we have seen in other parts of the institute, moving students toward dramatic gains in student achievement involves many things—from building a powerful classroom culture to communicating effectively with students and parents. Yet without effective instruction, these other aspects of teachers' work won't get you very far. This course therefore aims to help you design and deliver instruction effectively.

Your perceptions and assumptions about good instruction most likely stem from your own experience as a student. You probably showed up in class and saw your teachers deliver lessons, some more creatively and engagingly than others. So it may seem that instruction is about showing up and delivering lessons. Good instruction, it may seem, is about being creative and engaging.

Yet this is not really the essence of instruction, or good instruction. Good instruction, most fundamentally, entails moving a class or classes of students from one place to another in their understanding or ability to do certain things. When all other factors are held constant, the most successful instructors move their students the greatest distance. These instructors may in fact be the most creative teachers as well, but they won't always be. They *will* move their students forward most efficiently and urgently, through developing good plans, constantly assessing student progress, engaging in critical thought and reflection, and adjusting their plans to be most effective.

This course aims to give you the skills and knowledge necessary to engage in this process of instructional planning and delivery. Chapter One explains standards, answering the question of what you are expected to teach your students. Chapter Two focuses on assessment and the methods for determining when your students have mastered the goals you set. Chapter Three explains how to develop a year-long plan, which is the first critical step in actually reaching those goals. Chapter Four shows how to develop "unit plans," which go deeper in planning instruction for a segment of the year. Chapter Five details how to develop a lesson plan that maximizes student understanding. Chapter Six provides further discussion about some of the helpful instructional strategies that might fit into your lesson plan, and Chapter Seven shows you how to choose between those various strategies to make purposeful choices to reach your students. Finally, Chapter Eight shows how to differentiate instruction to meet the needs of individual children at different achievement levels, as well as of those who have special needs and those who are English Language Learners.

At the end of this course, we hope that you will have internalized the instructional process necessary to move your students forward as far as possible. Your ultimate success as an instructor will rest on your ability to apply that process while infusing it with a high level of critical thought about how best to further your students' understanding in each phase.

Start With Standards

Chapter One

I. The Rationale For Standards-Based Education

II. How To Read The Standards

Introduction

The guide who leads climbers to the apex of their journey has an advantage over the classroom teacher. It is abundantly clear what the guide wants his climbers to conquer: the mountain.

In the classroom, students work toward a goal – but what is that goal? If you teach world geography, is the goal for your students to become geography experts? If so, what does it mean to be a geography expert? If not, is it enough for students to leave the year with a certain body of facts and skills? Which facts and skills? If students can recite the geography textbook back to you, have they proven their understanding of geography? If not, how do you know when someone is proficient in geography? How do you get someone to reach that proficiency level? What if the student has a learning disability? What if the student doesn't speak English?

When starting out, beginning teachers often first want to know how to engage their students, how to make lessons fun and interesting, and how to ensure that their students learn. We will get to that. But as you can see, the big questions of Instructional Planning & Delivery reach far beyond the "how." They begin with the "what."

As improbable as it may sound, some teachers find themselves "instructing" for months before realizing that they have no idea what they want their students to learn. While some corps members walk into schools and receive a scripted curriculum that details exactly what they will teach every day, others are given little more than a piece of chalk and a smile. Some of these teachers may say, "I want my students to become better writers," but may have no idea what their students should be doing differently in June from what they're doing in September. Instead of a clear path to a chosen destination, with every day serving as another leg on the climb up the mountain, the school year becomes an aimless journey that entertains the whims of these teachers, who often worry how they're going to fill time during the day. While students might receive A's for completing what their teachers assigned, they are not necessarily better off than they were at the beginning of the year.

Obviously, with many of our students far behind where they are supposed to be academically, this approach is not going to narrow the achievement gap. In fact, for the teachers who take the time to figure out exactly what their students need, "filling time" is no longer an issue. There is so much that needs to be done. There is great urgency driving their planning and instruction every day.

This course will prepare you to understand your job as the instructional leader of your classroom. As you read the following chapters, keep these three questions in mind:

(1) What should your students know, understand, or be able to do?

(2) How will your students demonstrate their mastery?

(3) How will you instruct your students so they can reach that level of mastery?

To be an effective teacher for your students, you must know the answers to these questions. This chapter addresses question number one.

I. The Rationale For Standards-Based Education

It wasn't that long ago when teachers made most of the decisions for what their students would learn in their classes. They wrote all of the lessons. They wrote the tests. In order to graduate, students needed to meet the minimum requirements established by the individual teachers at their school. Yet when examining the results from national standardized exams, researchers and policymakers discovered that separate expectations yielded unequal results. The National Assessment of Educational Progress found that students in high poverty schools who had mostly A's in English and math scored the same on the national assessment tests as students who made mostly C's in higher-income schools. One school's diploma represented something completely different than a diploma from another school. Students in low-income communities were receiving a watered-down curriculum and being inadequately prepared for the professional world, thus helping to perpetuate the cycle of poverty.

Standards are the most important tool in planning. Without standards, I would just be planning based on what I think the students should know about a subject. Standards give me a clear picture of what students will be expected to do in order to graduate and let me build my curriculum to bring them to that goal.

Luis Alonso
Graduate Student, Columbia University

In the early 1990s, President George H. W. Bush convened a group of governors to set broad educational goals for all of our nation's students to meet by the year 2000. Under the Clinton administration, Congress passed the Goals 2000: Educate America Act, which codified these goals into laws and launched the creation of standards, the general guidelines for what students are expected to know, understand and be able to do by the end of a given course.¹ From an instructional standpoint, standards make it much clearer to teachers that all students – regardless of school, neighborhood or background – should receive a rigorous education based on a common series of learning goals.

Despite its promise, the standards movement has proven controversial because of its accountability system. As a result of the recent No Child Left Behind Act, a school's students must demonstrate increasing levels of success on annual assessments or face district or state sanctions. While some states use these exams to decide whether children will advance to the next grade level, some educators decry linking a student's fate to a single test.² Others contend the push for results ignores unequal resources among schools and districts, and the tests frame knowledge in a particular, provincial way. Some teachers resent their perceived lack of instructional freedom through the implementation of standards. They feel compelled to "teach to the test," devoting school funds and class time to provide strategies and tricks for discerning correct multiple-choice answers, at the cost of promoting deep understanding of the material or encouraging independent thinking.

Yet the standards – and the high-stakes testing – are now legally mandated. And the fact that many of our students are *not* performing well on these tests is a disturbing manifestation of the "achievement gap" that we are working to close. Holding schools accountable for equal results allows communities to measure the quality of their local education system, creating expectations where they may have been

¹ Department of Education website, Archived Information section. H.R. 1804, GOALS 2000: Educate America Act. <http://www.ed.gov/legislation/GOALS2000/TheAct/index.html>, accessed 1/31/07.

² Department of Education website, No Child Left Behind page. <http://www.ed.gov/nclb/landing.jhtml?src=pb>, accessed 1/31/07.

Start With Standards

lacking. Parents of students in higher-income communities would certainly express alarm if their children did not perform well on these tests, and parents of students in low-income communities are no different. In addition, “quality instruction” and “test preparedness” are not mutually exclusive concepts. Effective teachers in the era of accountability do not set their sights on passing a test, but rather on nurturing a clear grasp of concepts, ideas and skills. They use the standards to ensure that their students remain on track with their national peers. If students learn the content of the standards, then passing standardized tests is simply a formality that provides evidence that they’ve done so. The institute curriculum is designed to help you work within the mandates of state education agencies to develop effective standards-based lessons.

II. How To Read The Standards

Every state in the country has developed standards that categorize expectations for student learning by grade and subject. To find the standards developed by the states where we place corps members, search the web sites listed in Internet Links to Regional and National Standards in the Toolkit (pp. 1-2).
✕

What These Standards Look Like
Don’t be confused by the terminology in various state and district standards. As mentioned above, all states give some guidance about the skills and concepts students should master. Some states and districts call those guidelines *standards*, while others refer to them as *benchmarks*, *essential knowledge*, *essential skills*, *performance standards*, and so on. Most states break those broad guidelines down further, but again the terminology differs from region to region.

What Students Need to Know		
Instructional Guidance		Examples
“Standards” (a.k.a. essential knowledge and skills, competency goals, learning standards, competencies)	Most general → → →	A. Students learn and effectively apply a variety of reading strategies for comprehending, interpreting and evaluating a wide range of texts including fiction, nonfiction, classic and contemporary works.
		B. Students will investigate structure and function in living systems.
		C. Students demonstrate an understanding of the notion of differentiability.
“Learning Goals” (a.k.a., benchmarks, essential elements, essential skills, performance standards)	→ → Most specific	A. Students will be able to use reading strategies such as making inferences and predictions, summarizing, paraphrasing, differentiating fact from opinion, drawing conclusions, and determining the author’s purpose and perspective to comprehend written selections.
		B. Students will identify, compare, and contrast levels of organization including cells, tissues, organs, organ systems, and organisms.
		C. Students demonstrate an understanding of the derivative of a function as the slope of the tangent line to the graph of the function.
“Objectives”		A. Students will be able to distinguish fact from opinion.
		B. Students will be able to compare and contrast the structure and function of the human circulatory and respiratory systems.
		C. Students will be able to calculate the derivative of a second order function.

The bottom line is that the terminology does not matter. And, it would be almost impossible to identify all the variations in district terminology for different levels of specificity of standards. The chart above uses three of the most common terms. From the most general guidelines to the most specific, those terms are “standards,” “learning goals,” and “objectives.” An objective is the building block of an individual lesson. Generally speaking, in one lesson, your students should be able to demonstrate the learning target embedded in at least one objective.

Understanding the Standards

The guidelines presented by many states and districts are more general and broad than you would want to use to design a lesson plan. A common refrain from new teachers is, “My standards are so vague! They don’t help me figure out what my lessons should be at all! How do I figure out what to teach?” This statement highlights a common misconception about the structure and purpose of standards. The purpose of standards is not to articulate specific skills that can be taught in one lesson but to outline an overarching concept that encompasses multiple skills. As we will discuss in later chapters, some states may provide more detail around their standards, dividing them into learning goals. However, if your state does not provide this extra guidance, it will be your job to break down the standards into these more specific bundles of knowledge and skills. Further, no matter the level of detail in your standards, it will always be your responsibility to organize your learning goals into units and create lesson objectives that incrementally lead to the achievement of the larger goal.

Standard 1

Learning Goal A

- Objective 1
- Objective 2
- Objective 3

Learning Goal B

Learning Goal C

Learning Goal D

To help illustrate how different states’ standards vary, here’s a peek at one subsection of an eighth grade Social Studies standard from Texas³:

Standard 1: History – Students are able to describe the political, economic, and social events and issues related to the colonial and revolutionary eras, the creation and ratification of the U.S. Constitution, challenges of the early Republic, westward expansion, sectionalism, Civil War, and Reconstruction.

Section six: The student understands westward expansion and its effects on the political, economic, and social development of the nation. The student is expected to:

- Explain how the Northwest Ordinance established principles and procedures for orderly expansion of the United States;
- Explain the political, economic, and social roots of Manifest Destiny;
- Analyze the relationship between the concept of Manifest Destiny and the westward growth of the nation;
- Explain the major issues and events of the Mexican War and their impact on the United States; and
- Identify areas that were acquired to form the United States.

These guidelines spell out your end goals pretty explicitly. Of course, next you will need to figure out what *were* the major issues and events of the Mexican War, and what *was* their impact on the United States. That information will not appear in the standards. The standards only serve to orient you and help you understand the state education agency’s general expectations for your students.

Sometimes the standards appear to be considerably vaguer because they describe skills or themes that you will reinforce throughout the year. Consider, for example, one subsection of the fourth-fifth grade Language Arts Reading Standard from Arizona⁴:

³ TEKS for Social Studies, Middle School. <http://www.tea.state.tx.us/rules/tac/chapter113/ch113b.html>, accessed 1/31/07. Links to all Texas state standards available at <http://www.tea.state.tx.us/teks/index.html>.

Start With Standards

Standard 1: Reading – Students learn and effectively apply a variety of reading strategies for comprehending, interpreting and evaluating a wide range of texts including fiction, nonfiction, classic and contemporary works.

Learning goal: Use reading strategies such as making inferences and predictions, summarizing, paraphrasing, differentiating fact from opinion, drawing conclusions, and determining the author's purpose and perspective to comprehend written selections. The student will be able to:

- Identify the main ideas, critical and supporting details, and the author's purpose, feelings, and point of view from the text.
- Distinguish fact from opinion.
- Summarize the text in own words.
- Compare and contrast the text (e.g., characters, genre, cultural differences, fact, fiction).
- Determine cause and effect relationships.
- Identify the text in chronological, sequential, or logical order.

While the standard and sub-standards are admittedly general, they still give considerable guidance to a teacher wondering what to teach. They also serve to give direction to the fourth and fifth grade teacher who asks, "Where should I be headed with my students?" Instead of teaching "reading," the standards make it clear what concepts and skills are associated with that subject; instead of simply reading a fable with students, a teacher would instruct them to discern the cause and effect relationship of a particular character's actions.

Still, you will need more information about the level of detail or sophistication to which your students need to know, understand, and be able to demonstrate these standards, especially since standards may seem identical across grade levels. Eighth graders, for instance, are also supposed to "determine cause and effect". It can be difficult to discern what fourth grade and eighth grade students need to do differently when the language of the standard remains the same.

Here's where to clear up the confusion:

- Your district curriculum guide. School districts often re-publish the state standards with greater specificity (aligning them with the district's resources, for instance), so be sure to ask your colleagues, grade-level chairperson, department head, principal, or district director of instruction if such a curriculum guide exists. If you ask how the standards in your district are "vertically aligned," you may secure a document that details how different grade levels should address similar learning goals.
- Outside organizations. Professional organizations (e.g., National Council of Teachers of Mathematics (NCTM) or the National Science Foundation (NSF)), and for-profit organizations (e.g., CORE Knowledge Foundation) have also developed comprehensive standards and guides for teachers, and they can serve as additional sources of insight as you try to determine what it means for students to meet certain academic goals. For instance, the NCTM's guide provides advice for the types of math problems that students should be able to solve at different grade levels. No list of state standards is that nuanced and helpful.

⁴ "Language Arts Standards Rationale." <http://www.ade.state.az.us/standards/Essentials/LANGARTSESS.pdf>, accessed 1/31/07.

- Mid-continent Research for Education & Learning (McREL) maintains a website (www.mcrel.org) that helps explain some of the grade-level distinctions of broad standards. Here's how McREL segments a vague standard into four tiers of complexity⁵:

I. Students will understand and apply basic and advanced concepts of probability.

Level I (Grade K-2):

- Understands that some events are more likely to happen than others
- Understands that some events can be predicted fairly well, but others cannot because we do not always know everything that may affect an event

Level II (Grade 3-5):

- Understands that the word "chance" refers to the likelihood of an event
- Recognizes events that are "certain," "uncertain," "likely," "unlikely"
- Understands that statistical predictions are better for describing what proportion of a group will experience something rather than which individuals will experience something
- Uses basic sample space (i.e., the set of all possible outcomes) to describe and predict events

Level III (Grade 6-8):

- Determines probability using mathematical/theoretical models (e.g., table or tree diagram, area model, list, counting procedures, sample space)
- Determines probability using simulations or experiments
- Understands how predictions are based on data and probability
- Understands the relationship between the numerical expression of a probability (e.g., fraction, percentage, odds) and the events that produce these numbers

Level IV (Grades 9-12):

- Understands the concept of a random variable
- Understands the concepts of independent and dependent events and how they are related to compound events and conditional probability
- Uses a variety of experimental, simulation and theoretical models (e.g., counting procedures, trees, formulas for permutations and combinations, Monte Carlo simulations)
- Understands the properties of the normal curve (i.e., used to approximate data distribution for many real-world phenomena) and how the normal curve can be used

- Other districts or states. Because of the increased focus on standards, many districts have devoted significant resources to developing extensive, standards-based curricula, and post their guides online. If your state's standards baffle you, try comparison-shopping with another state. For example, California's science guidelines are particularly strong and specific, outlining that eighth graders should know, among other facts and concepts, that "the greater the mass of an object, the more force is needed to achieve the same rate of change in motion." This clearly provides more guidance than "students will be able to understand force."
- Standardized tests. An additional way of figuring out what your students should be able to accomplish is by working backward. By looking at the standards-based district, state or national exams in your grade level or subject area, you can get a sense of the types of questions that students are expected to answer – and in what formats. For a list of Standardized Tests in Your Region, please see the Toolkit (p. 3). ✖

⁵ Mid-continent Research for Education and Learning website, "Mathematics Standards and Benchmarks" page. <http://www.mcrel.org> accessed 1/31/07.

Start With Standards

- Conversations with colleagues, excellent school visits and exemplary student work. Since we seek to provide the highest possible educational opportunity for our students, it is worth taking the time to visit a school widely regarded as excellent and to examine the work that children there complete. Seeing what high-achieving students accomplish may present the clearest, most vivid sense of what you should aim for in your own classroom, and your colleagues at these schools may be willing to share advice or special tools that helped them reach these heights.
- Textbooks. You may think, “What’s the big deal about knowing what to teach? Isn’t that what the textbook is for?” Yes and no. It is true that an excellent textbook aligns with state standards and not only contains the facts and concepts that your students will need to know but also features activities and problems that push students beyond the basics and into higher-order learning. Yet excellent textbooks are expensive, thus rare in low-income communities, and are often aligned to the state standards of big purchasers like California and Texas, not necessarily yours. Plus, textbooks rarely distinguish between important and less pressing material, nor do they address the multiple levels of student needs in your classroom. They also do not focus on certain experiential standards; language arts textbooks are too busy outlining the parts of speech to explain how pitch, volume and tone affect a speaker’s delivery. If you receive a class set of textbooks, use it as a touchstone to know what to teach – but consider it merely one of the many resources you should access.

Through research and inquiry, you will be able to understand exactly what your students will be expected to learn by year’s end. By taking the time to pore through your standards, consult additional resources, and digest what it is

you should teach you will begin to see connections and intersections between different learning goals, helping you to develop a rich and cohesive curriculum for your students. If you dive into your year without that foundation, you will likely find yourself resorting to filling time with your students, while failing to address the knowledge and skills so critical to their future success.

As you will see, it is essential that you understand your standards in order to effectively plan many parts of your instruction, including your big goal, long-term plan, and unit plans. In the next three chapters we will continue to explain how to interpret your standards in varying levels of detail for the purposes of different planning actions.

Special Education and the Standards Movement

There would appear to be a contradiction between the standards movement, which sets academic expectations for all students at a given grade level and holds schools accountable for performance outcomes, and special education laws, which stress individualized goals and hold schools accountable for following procedures properly. In 1997, the Office of Special Education and Rehabilitation Services of the U.S. Department of Education sponsored a project to explore the implications of the drive toward standards for special education students. After studying the issue, the Office came to the conclusion that “**all students should have access to challenging standards** and that policy makers and educators should be held publicly accountable for every student’s performance. However, we also conclude that **adaptations will be required** for some students with disabilities, particularly those with significant cognitive disabilities.”

Conclusion and Key Concepts

This chapter has familiarized you with standards, which serve as the foundation for the rest of this course. Concepts and skills derived from standards are the centerpiece of student learning. You should also finish this chapter understanding that:

- Before planning activities one must first consider what students need to learn.
- Standards articulate what a student should know, understand and be able to do by the end of the year, and they set equitable benchmarks across classrooms, schools, districts, and states. They are also the basis for standardized testing across the country.
- Since standards are broad guidelines for student achievement, it will be your job to interpret them, using curriculum guides, other district or state websites, professional organizations, standardized tests, the advice of colleagues, excellent school visits, exemplary student work and textbooks.
- Distilling standards is a significant, upfront investment of time that has huge payoffs in clarity around what your students need to learn.

Chapters Three, Four, and Five will detail the process of breaking down standards into learning goals, grouping those learning goals into units to develop a long-term plan, devising objectives to meet unit goals, and planning individual lessons. First, however, you must develop a way to know if you have reached your goals, so that you can ensure that your lessons enable students to meet the performance expectations you set. You must also determine where your students currently stand, so you will have a good sense of how far your students need to travel in order to reach these goals. These are the topics of Chapter Two, Student Assessment.

Student Assessment: Measuring Progress Toward Your Goals

Chapter Two

I. Summative Assessment

II. Diagnostic Assessment

Introduction

Just as a guide leading a group of hikers has a mountain to climb, the teacher leading a class of students has standards. It is evident when the climbers have met their goal: they are standing on the summit. How does a teacher know when students have met their goal – what is the summit of student achievement? And how will you know your students have gotten there?

Remember the three questions we posed at the start of this course:

1. What should your students know, understand or be able to do?

2. How will your students demonstrate their mastery?

3. How will you instruct your students so they can reach that level of mastery?

As we saw in the last chapter, you must first determine what your students are expected to know, understand, or be able to do. This means more than “learn geography” or “think critically.” We saw standards stating that eighth graders in Texas are expected to explain Manifest Destiny. Fourth graders in Arizona are required to distinguish fact from opinion. Those are fairly clear guidelines. But what will be acceptable evidence of a child’s ability to do these things? How will you know what to prepare your students to do if you do not first determine what success looks like in these tasks?

Planning lessons (question three above) before planning measures of success (question two) can quickly become a case of the tail wagging the dog. When teachers have not taken the time to think through the ways in which their students will need to demonstrate mastery of standards, their lessons often undershoot the mark, featuring simplistic or unrelated explanations and activities. These teachers then write tests based on the altered content they’ve presented. They never realize that they’ve strayed from the standards.

As Wiggins and McTighe note in *Understanding By Design*,

What would we accept as evidence that students have attained the desired understandings and proficiencies—*before* proceeding to plan teaching and learning experiences? Many teachers who have adopted this design approach report that the process of “thinking like an assessor” about evidence of learning not only helps them to clarify their goals but also results in a more sharply defined teaching and learning target so that students perform better knowing their goal.⁶

If, as those Texas social studies standards from Chapter One state, students are expected to “identify the areas that were acquired to form the United States,” you may decide that the most reliable assessment

⁶ Wiggins, Grant and Jay McTighe. *Understanding by Design*. Alexandria: ASCD, 1998, 8-9.

would be to give students a blank map of the continent and create a series of overlays representing American expansion. Your instruction would then have to give students all of the knowledge and practice on how to accomplish this independently. **Simply put, once you've determined *what you are supposed to teach*, you should determine what students will *do to prove that they understand the material in the required ways*.** This approach to instruction is called “backwards planning” because it requires you to start by identifying what you want students to know at the end of instruction. By doing so, you can gear your instruction to ensure that students perform the way you originally envisioned.

In addition to being helpful as a planning tool, assessment is the means by which we gauge progress. We need to have a clear sense of what our students have achieved so that we can make decisions about how we approach future instruction, where individuals need particular support and, more generally, how we are succeeding. One standout trait of teachers who make major progress with their students is frequent assessment. The focus becomes not “what I taught” but rather “what my students learned.” In this sense, assessment is vital to our mission as an organization. In order to close the achievement gap, we need to make dramatic, measurable gains with our students. We will not know if we have accomplished our goals if we do not record where our students started – and where and by how much they have grown. Assessment holds us accountable to our goals.

Thus, this chapter is about compiling acceptable evidence for student achievement. What does it mean to demonstrate mastery of academic goals, and how do teachers go about collecting such evidence? This chapter is also about using evidence. How can teachers take stock of their students and use that information to shape further instruction and address individual needs?

I. Summative Assessment

While this section focuses on summative assessment, there are two other equally important forms of assessment that we will discuss in this course. *Diagnostics* gauge student mastery of prerequisite knowledge and skills and prior knowledge of content at the beginning of learning. We will discuss this form in section II of this chapter. *Formative* evaluations check student progress during the course of a lesson and unit of study and inform the adjustment of instructional decisions. We will discuss these in Chapter Five.

Summative assessments, the focus of this section, are the most familiar type of assessment. These are the tests, the examinations, the final projects – the ways in which a teacher formally measures students’ understanding of learning goals at the end of each unit or at the end of the year. These are the tools that provide teachers with data on the sum of student knowledge and serve as an important source for official progress reports and grades for children, parents and school officials.

Types of Assessments

Diagnostic – Before instruction begins, used to determine mastery of prerequisite knowledge and skills and prior knowledge of future content (e.g., reading readiness test).

Formative – Throughout a unit and lesson cycle, used to gauge progress (e.g., student practice problems during independent practice, weekly quizzes).

Summative – At the end of a unit or end of the year, used to measure growth and achievement formally (e.g., end-of-unit test).

This section will introduce you to the following topics:

- The different incarnations of summative assessments,
- The guiding questions for creating assessments,
- How to use summative assessments as planning tools to set clear, high expectations, and

Measuring Progress Toward Your Goals

- How to design summative assessments as an accurate and fair evaluative tool to communicate student progress.

Types of Summative Assessment

The primary goal of the summative assessment is to determine student understanding and growth, and teachers use a variety of tools to do this. Paper-and-pencil tests cannot measure every skill, nor would an extended interview be helpful (or practical) to gauge all learning.

- **Tests and quizzes** are, of course, a tried and true method of assessing student progress. They are relatively quick (but surprisingly challenging) to design and evaluate, and they provide huge flexibility in terms of structure. Tests and quizzes are an excellent means of generating quantifiable data that can be compared across your classroom or, in the case of standardized achievement tests, across your school, district, or state.
- **Performance assessments** require students to demonstrate a task rather than simply answer questions. For example, a student may be asked to generate scientific hypotheses, converse in a foreign language, or conduct research on an assigned topic. Performance tasks are designed to be similar to the challenges that adults face every day, requiring students to use higher-order thinking skills, such as judging, innovating, and creating rather than reciting, responding, or listing. Performance assessments are often termed “authentic” assessments because they ask students to perform tasks in a real-world-like context – for a specific purpose and audience under realistic constraints. Since they require students to actively apply knowledge and skills in an unprompted, novel situation, authentic assessments can reveal the highest possible level of student mastery. Note that performance assessments can also be challenging to administer and grade efficiently. You can look at some examples of Performance Assessments in the Toolkit (p. 7). ✖
- **Portfolios**, which contain a variety of student work (from writing samples to standardized tests scores), can be used both to help students identify areas for improvement and to present a summative picture of students’ progress. Working with the teacher, perhaps during regular conferences, students identify appropriate work samples to include in portfolios—either to reflect the children’s best work, or to show steady progress over time. This process encourages students to reflect upon and assess their own accomplishments. In addition to student work, portfolios frequently include written teacher evaluations and student self-assessments of the portfolio contents.
- Like many of these tools, **journals** can be used at all phases of assessment and provide a useful record of student work over time when communicating with students and parents about student achievement and needed areas of growth. As a summative assessment, journals can be used for

Assessment at the Pre-K Level

“Even though the methods we use to assess pre-K students at KIPP SHINE Prep are different from the methods we use to assess our older students, the results are equally essential for guiding and individualizing our instruction. I use work samples, child observations (it’s incredible how much you can learn about a child’s development from watching him or her!), one-on-one assessments, and standardized tests to obtain a holistic picture of each of my pre-K student’s progress towards meeting the state standards. I also maintain a portfolio about each of my students so I can track their progress throughout the year. All of these methods are developmentally appropriate and allow me to obtain valid and reliable evidence about my students’ growth and development.”

Zarabeth Parker Davis, Delta ‘02
Pre-K Teacher, KIPP SHINE Prep
Houston, TX

students to write about what they have learned, apply what they have learned to a new situation, or jot down lingering questions about the topic.

- Most school districts administer **standardized tests** to benchmark student progress across the district, state, or country, and you are not likely to have a choice as to whether or not to administer them. While the interruptions caused by these tests can be frustrating for both students and teachers, they can also provide useful information as to what students have learned. They are often the most accessible way of measuring progress over longer periods of time. Be aware, though, that standardized tests often set a low bar for student achievement, so using them as your sole method of goal-setting is not always a recipe for high expectations.

Guiding Questions for Creating Assessments

When creating any assessment, you should use the same backwards planning mindset that frames all of your instructional planning. To help you backwards plan your assessments, consider the following questions:

1. **What are your learning goals or standards?**
2. **What evidence would you need from students to demonstrate mastery of the standards/goals?**
3. **What method will you use to assess?**
4. **What questions or prompts will you include on the assessment?**
5. **What are the criteria for success? What are the characteristics of a high quality response?**

These questions will help organize the complicated process of creating an assessment and will ultimately increase the overall effectiveness of your end product. Note that while this section will primarily focus on summative assessments, these guiding questions can be used in designing any assessment, including diagnostic and formative tests used prior to and during instruction. To aide your assessment design, look at **Assessment Plan – Guiding Questions** in the Toolkit (pp. 12-13).✕

1. What are your learning goals or standards?

As we discussed in Chapter One, excellent teaching begins with identifying and understanding your course standards. Creating your assessment is no different. You must first identify what learning goals or standards your assessment will cover in order to begin developing a quality tool to measure student understanding. **Creating your summative assessments immediately after considering what your students are supposed to know or be able to do – both on the long-term level and as you plan a series of lessons – is an essential practice of effective teaching. That way, your eventual instruction is much more likely to be aligned with state expectations.** If a summative assessment is used to measure student mastery at the end of a unit (a group of learning goals), you will need to center your tool on those learning goals identified for instruction. **For example, if your students are expected to be able to compare democracy and communism, you will need to design an assessment that asks them to demonstrate their mastery of this goal. (Asking students to name a list of countries that fall into those categories would be insufficient.)** Knowing what you're going to expect your students to do, you will then gear your instruction to helping them achieve your goals. This does not mean that you will spend your instructional time giving your students the answers to your test, but you will ensure that your teaching is focused on helping students meet those objectives, as set by the state. As we will discuss in Chapter Three (Long-Term Planning) and Chapter Four (Unit Planning), you will identify your standards and more specific learning goals at the beginning of the unit planning process. When you create the vision of your unit plan use these goals as the starting framework for creating your end-of-unit summative assessment.

Measuring Progress Toward Your Goals

2. What evidence would you need from students to demonstrate mastery of the standards/goals?

Now that you have identified the learning goals driving your assessment, you can continue to backwards plan by determining the evidence that would indicate that students have successfully achieved these goals. What would it look like for someone to know the content and perform the skills masterfully? What would students need to do to prove that they had mastered the unit's learning goals? It is important to carefully consider and answer these questions to develop a clear vision for what you want your assessment to accomplish.

Building on the work you did to understand your standards and learning goals in Chapter One, you will now interpret them further to get a clear vision of student mastery. At this stage, your vision does not need to be completely detailed, but you should have an overarching sense of what you will need to see from students. Later in the process (during question five) you will refine this vision even further by identifying how responses look differently at varying proficiency levels.

To help interpret your standards and learning goals first ask:

- What are the **verbs** of my standards?
- What is the **content** on which the verbs take action?

For example, look at the following example of a social studies standard:

5.3 Students describe the cooperation and conflict that existed among the Native Americans and between the Native American nations and the new settlers, in terms of:

1. the competition among the English, French, Spanish, Dutch, and Native American nations for control of North America.
2. the cooperation that existed between the colonists and Indians during the 1600s and 1700s (e.g., in agriculture, the fur trade, military alliances, treaties, cultural interchanges).
3. the conflicts before the Revolutionary War (e.g., the Pequot and King Philip's Wars in New England, the Powhatan Wars in Virginia, the French and Indian War).

If these were your standards, you would identify the **verb** as “describe” and the **content** as including the “cooperation and conflict” between Indians and new settlers, the “competition” among different nations, the “cooperation” between colonists and Indians, etc.

After deciphering the verbs and content of each individual goal, holistically analyze the learning goals as a collective group. Think about which of the following is necessary in order to master this group of unit goals:

- **knowledge** or **understanding**
- **reasoning**
- **skill performance**
- **products**

Using the standards above you may realize that students will need **knowledge** of the pre-Revolutionary War conflicts, and the ways Native Americans, settlers, and colonists competed and cooperated. Additionally, the **understanding** of why these relationships existed and how they developed will be necessary for demonstrating mastery of the standards.

Further, it will be necessary for students to comprehend how these people and events are interrelated (one part of the **reasoning** required by the standard) and demonstrate abilities to describe Native

American tribes and nations, the conflicts among colonists, settlers, and Native Americans, and why these relationships existed (a few of the **skills** necessary for standard mastery). Ultimately, for students to show mastery of the overall standards, they will need to prove their factual knowledge of the relevant events, people, and actions by producing a description (in some form, whether written, visual, etc.). This **product** would serve as appropriate evidence for evaluating student understanding of the social studies standard.

Once you have unpacked your goals applying these suggestions, stop and reconsider the original guiding question – what will it look like for students to demonstrate mastery of the learning goals? Make sure you can confidently answer this question before you continue to create your assessment. Without a solid conception of what students will need to do, it will be difficult to make an assessment that provides you with the information you need.

Before proceeding, take time to consider the prioritization of topics to be included in your assessment. Out of all the learning goals to be assessed, which are the most important for students to master? What learning goals are “enduring” - or serve as prerequisite foundations for subsequent units or course standards? Answering these questions will help you to prioritize your learning goals while designing your assessment, enhance your decision-making abilities, and maximize the value and purpose of your measurement tool.

Understanding what evidence you will expect from students is an essential step in creating any assessment. Next, you will determine how you will design your assessment questions and prompts to gather this necessary evidence.

3. What methods will you use to assess?

Methods of Assessment

How do you design assessments that align with expectations and generate the evidence you need to determine student mastery? The key is *to be purposeful in the types of assessment questions you ask*.

When designing an assessment it is important to understand the two main categories or types of assessment questions: **objective** and **non-objective**. At the most basic level “objective” assessment questions are items that are generally not open to interpretation (e.g. multiple choice) while “non-objective” assessment questions are more open-ended and allow greater room for interpretation (e.g. essays).

By carefully considering what each type of assessment question or task actually demands of students, you will be much more likely to match your assessment with your goals for your students. There are specific reasons to use the various types of assessment questions based on what you wish students to demonstrate. For instance, when assessing a student’s knowledge of an unknown vocabulary word, providing four multiple choices of potential definitions, each much different from the next, might allow the child to be able to select the correct answer by mere process of elimination. It would be a much more accurate and authentic measurement of a child’s understanding to include the unknown word in a sentence and ask the student to provide a synonym, or at least make the multiple choices reflective of some common misconception of the word. **It is always important to think about *what* a student has demonstrated – and not demonstrated – by providing a correct response to your question.** Note the

Examples of Assessment Question Types

Objective questions -
multiple choice, matching, true/false, fill in the blank, computation.

Non-objective questions -
essays, presentations, short-answer responses, constructed-responses, projects.

Measuring Progress Toward Your Goals

distinctive purposes of the following four test questions, keeping in mind that there is a time and place for each task:

1. True or false: Renoir's work was painted in the Impressionist style of art.
Used because you want to confirm a student's knowledge of a basic fact, this true-false question tests if a student is able to make a positive association between Renoir and the term Impressionism. (Just be aware that this does not necessarily mean that the student knows what the term implies.)
2. Fill-in: The style of art known as _____ features nature or everyday situations, unmixed, shimmering colors and small brushstrokes blended by the viewer's eye.
A correct answer signals that a student is able to match the details of Impressionism with the term.
3. Multiple choice: Renoir's style most closely resembles (a) Degas, (b) Van Gogh, (c) Seurat, (d) Dali.
This question wants the student to compare each artist in relation to Renoir. Note that a correct response suggests that the student sees some similarity between Renoir and Degas – but does not necessarily signal an understanding of Impressionism.
4. Essay: Explain how Renoir's work is emblematic of the Impressionist style of art.
This question asks students to recall details about both Renoir's work and the elements of Impressionism, and then synthesize the two.

The purpose of these examples is not to say that one type of question is always better than another in every situation. Every single question format could be appropriate at some point, depending on your intention, and most teachers often incorporate a number of different question types – both objective and non-objective – into one single assessment. You must be aware, though, of the limitations and potential functions of each type as you select or design an assessment to measure student learning.

The chart below lists some common ways to use the various types of assessment questions.

Assessment question types and their uses

Question	Purposes	Examples
Multiple choice (objective)	Discriminate between options, comprehend concepts, make simple judgments	<ul style="list-style-type: none"> Where are you most likely to find freshwater trout? (a) the Dead Sea, (b) Lake Tahoe, (c) the Atlantic Ocean, (d) the neighborhood pond.
Matching, sequencing (objective)	Identifying relationships, classifying items, charting cause and effect	<ul style="list-style-type: none"> Label the following items with an (E) for executive branch, (L) for legislative or (J) for judicial. Put the following events in chronological order.
True-false, yes-no (objective)	Knowledge of generalizations, relationships and examples; predicting, evaluating	<ul style="list-style-type: none"> Under the first amendment, you have the right to: Assemble peaceably T F Say anything you want T F
Factual short answer, fill-ins (objective)	Recalling or classifying facts, terms or concepts, solving simple science and mathematical problems	<ul style="list-style-type: none"> Define tundra. Draw a diagram explaining the water cycle. Name the political philosophy promoted in the following speech.
Higher-order short answer (non-objective)	Summarizing, applying, concluding, evaluating, predicting, analyzing	<ul style="list-style-type: none"> After reading the news story below, write a summarizing headline. Given her previous actions, what is Lady Macbeth likely to do next?

Short or long essay (non-objective)	Organizing ideas, developing a logical argument, comparing concepts, evaluating a position or data, communicating thoughts or feelings, demonstrating original thinking	<ul style="list-style-type: none"> • Read the above poem (John Donne's "Death Be Not Proud") and describe the purpose and power of its major metaphor. • What would Darwin say about human cloning were he alive today?
--	---	---

While all question types may be appropriate at different times, non-objective tasks that require in-depth student responses generally produce more valid information about student understanding. Thus, you should attempt to use these types of items when possible. To be sure that students know how to give a speech, for instance, it is best to have them deliver one. Realize, though, that non-objective tasks can be time consuming to administer and evaluate. Because of this, it will not always be appropriate to use these types of prompts. Always balance the benefit of using more valid measurement tools with the values of efficiency and feasibility.

Choosing the best assessment question type for a particular unit or group of students may feel complicated and overwhelming. To aide your selection of the appropriate assessment method, consider the following factors:

- **Content of the unit** – what exactly are you trying to assess and what questions would be best suited to measure understanding of this content?
- **Efficiency** – what types of assessment will simplify the creation, administration, and grading of the assessment?
- **Breadth of material** – how suited is the assessment to cover different quantities of material?
- **Depth of knowledge** – how much will your assessment reveal about student understanding/misunderstandings?
- **Distorting factors** – what factors might distort scores and prevent the assessment from accurately revealing student mastery (see question four below)?

Considerations for Assessment Question Types (p. 14) ✖ will provide you valuable guidance in considering how these factors affect both objective and non-objective assessment questions. Use this chart to help you design the best assessment given your needs.

4. What questions or prompts will you include on the assessment?

Now that you know what learning goals you will assess and what type of assessment you will use, it is important to consider how you are going to ask students to demonstrate their mastery. What questions or prompts will you use? How will you word these items to elicit accurate evidence of student mastery? Answering these questions is imperative for developing an effective assessment. To reiterate, summative assessments are hugely important, not only for planning but to measure the achievement and growth of your students. Employing rigorous, effective assessment questions is integral to painting an accurate picture of student learning and leading your class to achieve significant academic growth. Summative assessments serve as the official documentation of student knowledge and skills, occurring at the end of every bundle of related lessons (called a "unit") to gauge progress relative to the baseline of student skills established at the beginning of the course. The results of these tests lead to formal decision-making, both in your own classroom as you plan instruction and in your school as it determines a child's academic future. Thus, it is vital that your assessments are valid and reliable.

Here are a number of concrete strategies for designing assessments to ensure they are effective measurements of progress:

Measuring Progress Toward Your Goals

- (1) In order for your assessment to be valid, it must test what it is designed to test and allow students to demonstrate true mastery.**

To create an assessment that will give you valid information, you must create assessment items (questions, tasks, prompts, etc.) that (a) align with your learning goals and (b) allow students to demonstrate their true mastery of the learning goals.

a. Alignment (of test items to learning goals)

If you've focused your instruction on learning goals involving similes and metaphors, it would be unreasonable to have sections about personification and hyperbole on your test. This may seem like an obvious point, but it can be tricky to ensure that your test is ***exactly aligned*** to all parts of your learning goals, and nothing else. To make sure your questions are valid and aligned, make sure that there are no items on your test that are not required by your learning goal. Including "extraneous" questions that don't match your learning goals will only confuse or frustrate your students and prevent you from getting a clear picture of their relevant mastery levels.

Further, you also need to craft test items that match the exact action or performance that is required by the learning goal. Return to question two above and review the verbs of your standards. These give you clear guidance for what you should expect students to do on your assessment. For example, if your learning goal asks students to *compare* the phases of matter, then your assessment items should call for students to perform this exact action. Requiring students to merely identify phases of matter would not sufficiently assess this learning goal.

Similarly, when there are multiple parts to a learning goal you must ensure that your assessment has questions aligned to every related section of that goal. If a learning goal requires students to identify, describe, and compare the three phases of matter, you should make sure that your assessment tests students' ability to perform *all three* actions. Simply asking students to list examples of solids, liquids, and gases will not be fully aligned to your standard. This will prevent you from completely understanding whether your students have reached the level of mastery demanded by the grade-level goal. To ensure that your assessment is a valid test of student mastery, always create items that accurately (and exclusively) match the actions or performances required by your learning goals.

Also note that, as discussed in question three, some types of assessment questions are better suited for or more aligned to different demands of your content area. Return to the table above detailing assessment question types and their uses. This will assist you in determining what kinds of questions are better suited for the demands of your learning goals.

b. True Mastery

In addition to being aligned to your learning goals, a valid assessment must allow students to show their genuine understanding of the content you are testing. If "true mastery" is indeed being measured (and revealed), then students who have mastered a goal or objective will almost always correctly answer a question aligned to that goal, while students who have not mastered a goal or objective will incorrectly answer the aligned question. There are a variety of factors that may prevent assessment items from providing a valid measure of student mastery. To avoid these potential problems, consider the following guidance:

- Be aware that your students may get tripped up on aspects of a question you had not intended, impairing your ability to assess their mastery of the skill you meant to test. A word problem, for example, requires students to read and understand the terms of the

scenario, determine what kind of computation is required, develop an equation for the problem, and solve it correctly. In this instance, requiring students to show their work can help you pinpoint where your students may have lost their way.

Here are some strategies for crafting test items that reveal true mastery, many of which were adapted from Anthony Nitko's *Educational Assessment of Students*⁷:

- **Ensure that items don't give away answers.** Make sure your questions do not "give away" their own answers with irrelevant clues, or help students answer other questions on the test. Remember that the goal of your assessment is to learn if students have truly mastered objectives.

Not so good: Someone who studies architecture is called an _____.

Better: Someone who studies building design is called a(n) _____.

Not so good: 1. Someone who studies building design is called a(n) _____.
5. If you wanted to design a building, what type of professional would you need? _____

Better: Only use one of the above questions on the same assessment.

- **Focus the item.** Watch your wording and be explicit if you're looking for a specific answer. Otherwise, your question could yield unintended answers or allow for a range of unwanted responses.

Not so good: The author of *Huckleberry Finn* was _____. (The student could conceivably put "a man," "criticizing slavery," etc.)

Better: What is the pen name of the author of *Huckleberry Finn*?

Not so good: Where is New Orleans located? _____

Better: New Orleans is located at the mouth of the _____ River.

- **Test one idea at a time.** Some teachers try to trick their students by placing more than one true and false fact in the same question. Yet this strategy does not allow teachers to know what piece of the question students are deeming true or false.

Not so good: Tobacco was the chief crop of Virginia, the first British colony in America. T F

Better: Tobacco was the chief crop of colonial Virginia. T F
Virginia was Britain's first colony in America. T F

- **In a multiple-choice question, ensure that the incorrect answer choices are at least plausible to someone who lacks knowledge.** Make sure that some of your incorrect answer choices are

⁷ Nitko, Anthony. *Educational Assessment of Students*. New York: Prentice Hall, 2003.

Measuring Progress Toward Your Goals

rigorous “distracters,” plausible answers based on common student errors or misconceptions. (You know you’re in trouble when your tests resemble the \$100 questions on “Who Wants to Be a Millionaire?”) Remember the goal is for students to demonstrate their understanding of the material.

Not so good: The country directly west of Spain is (a) Rome, (b) Antarctica, (c) Brazil, (d) Portugal.

Better: The country directly west of Spain is (a) Italy, (b) France, (c) Switzerland, (d) Portugal.

Crafting these quality distracters will greatly enhance the validity of your multiple choice questions. They increase the likelihood that you will accurately learn whether students truly understand the objective - and did not simply guess or eliminate obviously incorrect choices. Additionally, the process of creating plausible answer alternatives will stimulate your thinking about the misunderstandings students may experience during instruction and the background knowledge and skills they will need for standards mastery. You can then proactively plan to address prerequisite skills and prevent misunderstandings as you create your units and lessons.

- **Avoid posing questions in the negative.** Negative questions greatly enhance the chances that a student will misunderstand the question. Use short, exact and positive statements. If you must write a question in the negative, that fact should be highlighted.

Not so good: What mistakes should you not make if you don’t want your reader to become confused by your writing? _____

Better: What should you avoid doing to make your writing clear for your reader? _____

- **Be conscious of potential bias.** Are you unintentionally promoting gender or racial stereotypes by making generalizations in your test questions? Since context familiarity is a key ingredient for comprehension, your reading passages should reflect the cultural experiences of your students. What values or perspectives do your questions assume? Consider this question, where the examples may seem foreign:

Mr. Jones ate a _____ breakfast of oatmeal, sausage links and a croissant with marmalade. (a) bizarre (b.) nourishing (c) feeble (d) skimpy

Think critically about the cultural perspective from which you operate. Students are likely to feel detached or alienated from school when their experiences are ignored. Recognizing personal bias is discussed in greater detail in the *Diversity, Community, & Achievement* textbook.

- **Ensure answers are definitely true or definitely false.** A statement should not be so general that a knowledgeable student can think of exceptions that reverse the answer’s intended truth or falsity. Beware of generalizations, for example.

Not so good: In Galileo's time, everyone believed that Earth was the center of the universe except him. T F

Better: Galileo disputed the common belief that the Earth was the center of the universe. T F

Note that well-constructed test items require students to truly know the material in order to supply the correct answer, whereas poorly constructed tasks will give clues that allow less knowledgeable students to appear proficient, compromising the validity of the results. Questions that don't reveal true mastery may confuse students and lead to potentially misleading data. It is crucial to avoid these problems because when you incorporate assessment results into your ongoing planning, inadequate or inaccurate data will lead to flawed conclusions about student mastery. This will prevent you from making appropriate instructional decisions that lead your students to their ultimate goal – dramatic academic achievement. For further examples and information about crafting valid questions see **Guidance for Creating Valid Assessment Items** in the Toolkit (p. 15) ✕

A Note on Scaffolding

We will discuss the creation of diagnostic and formative assessments later in this chapter. In general, the same guidelines provided in this section apply to the creation of all assessment types. Additionally, to increase the validity of these assessments – or any summative assessment used to inform your instruction – you will also need to “**scaffold**” questions. That is, you should include multiple items that progress from simpler to increasingly more complex cognitive levels (we discuss scaffolding in greater detail in Chapter Four). This allows you to pinpoint the specific skills and knowledge your students know and exactly where they struggle with a particular concept. This provides you with more detailed information about student mastery, which in turn allows you to make more informed and effective instructional decisions.

Remember that certain summative assessments (such as end of the year course assessments and some unit assessments) are designed to tell you the sum of student knowledge at the completion of a series of learning goals. The results of these tests are not used to influence your subsequent instruction. For those purposes, it would not be appropriate to include scaffolded questions on each objective or learning goal. Doing so could lead your test to be extremely long, making it burdensome to administer and grade, and generally inefficient. Further, scaffolding questions on certain topics might unintentionally assist or prompt students in demonstrating mastery of a given learning goal. This may ultimately prevent the assessment from revealing what students are genuinely able to do without additional support or “cognitive clues”.

(2) In order for your assessment to be reliable, you must ensure that it will yield consistently accurate results and provide every student with the opportunity to accurately demonstrate his or her knowledge.

- a. Include multiple items and varied ways to assess each learning goal. If a test has one question for a particular learning target, it becomes unclear whether students really know the material or just happened to guess the correct answer in that instance. Provide each student with multiple opportunities to demonstrate competence on each learning goal. You should also create a variety of ways for students to show what they know through a combination of test questions, papers, models, dramatizations and journal entries. If a student is consistently having trouble with pen-and-paper tests, and you are not assessing a child's ability to write, try testing his or her understanding orally. You may discover that you need to teach the child test-taking skills. Remember that the goal of any assessment is to gather evidence of a student's

Measuring Progress Toward Your Goals

mastery; the format should not be an impediment to that process. Including multiple opportunities and a variety of ways to elicit understanding increases the validity of assessments by enabling students to demonstrate their true mastery of your learning goals. You should articulate your expectations clearly, whether on a quiz,

- b. Be clear about the directions on the day of the assessment. portfolio, or performance assessment, and give an example of how to follow those instructions correctly. On a quiz you might have a sample multiple-choice question with the answer filled in. For a performance assessment you might give a sample final product against which other students can compare their work.
- c. Develop a standard grading system. To ensure that a student's score does not rest on your own particular feelings about that child, or on your mood or inclination that day, use a systematic procedure to assign quality ratings or marks for every student. Many assessments, including short-answer questions and essays, will evoke a number of different responses, and you will need to develop criteria to judge the merits of each answer. Make sure your grading system reveals how students progress on individual objectives or learning goals. This will enhance the detail and reliability of your grading system and provide you with more valuable information to inform instruction. Further, be sure to assign a proportionate number of points to items of a different nature. A prompt that has two distinct parts, for instance, should not be assigned the same number of points as a simple multiple choice question. (We will discuss creating a grading system in greater detail under question five below.)
- d. Be fair in the administration of your assessment. Most students should be given the same amount of time and take the assessment under similar conditions. At the same time, however, be mindful of your students' special needs. As you will read later in this course, students with special needs may require extra time, fewer answer choices, larger print, or an oral assessment, to name just a few potential modifications and accommodations. The fact that a student has special needs does not mean that you do not assess them. Rather, you refer to the student's Individualized Education Program (IEP) to determine the appropriate adjustments in the assessment process.

(3) In order for your assessment to be efficient, you must design your questions to maximize space and time, while remaining purposeful.

- a. Take time to *prioritize those test items that truly represent content of great value* to a student's learning; otherwise, you could write questions for every single fact and concept.
- b. *Order items from easier to harder* so students do not spend all of their time on questions with which they may struggle. (You should, of course, also teach your students test-taking strategies, such as skipping and later returning to challenging problems.)
- c. Consider how long the test will take to administer. Of course, certain test items take longer to complete than others (see chart). Take

Estimates for Student Completion of Tasks

True-false items	20-30 seconds
Multiple-choice (factual)	40-60 seconds
One-word fill-in	40-60 seconds
Multiple-choice (complex)	70-90 seconds
Matching (6 choices)	2-4 minutes
Short-answer	2-4 minutes
Word problems	5-10 minutes
Short essays	15-20 minutes
Data analysis/graphing	15-25 minutes
Drawing models / labeling	20-30 minutes
Extended essays	35-50 minutes

Source: Nitko, Anthony. *Educational Assessment of Students*. New York: Prentice Hall, 2003, p. 117.

the test beforehand, and assume that you can complete it three to four times faster than the average student. Taking the test ahead of time also helps you catch mistakes and confusing questions.

- d. Consider how often your students are being tested. There are simply too many skills to teach to spend all of your time testing. Plus, students lose concentration, focus, and motivation when they are tested too long or too often. If you teach middle or high school, work with your students' other teachers to see if you can establish a set day of the week for testing in your subject area.
- e. Consider how long the test will take to grade. Checking 150 short answers takes much longer than it takes the eye to scan a row of multiple-choice answers along a margin. It is, of course, your professional responsibility to create tests that can accurately reflect student understanding, which could rarely occur through multiple-choice questions alone. Yet when two different types of test questions could serve the same purpose, it is acceptable to use efficiency as a deciding factor.

In drafting assessment items, it is important to remember that there are no "perfect" assessments. Often you must make tradeoffs between one characteristic of an effective assessment and another. For instance, an extremely valid assessment may be inefficient to administer and less reliable to grade. It is your job to select or design an assessment that strikes the best balance between these values given your instructional goals and student needs. Remember to return to the resource **Considerations for Assessment Question Types** in the Toolkit (p. 14) ✕ to help determine what types of questions are best suited for different purposes. By ensuring that your assessments are as **valid, reliable, and efficient** as possible, you will help identify the gaps in student learning that you need to go back and address. Well-designed summative assessments also will help generate accurate and useful data for students, parents, and school officials about a student's achievement and progress.

5. What are the criteria for success? What are the characteristics of a high quality response?

To create assessment prompts that provide accurate information about student performance, you need to determine what it means to be successful on these questions. How do you know if you are maintaining the high expectations that are so important to achieving dramatic academic gains? What will an excellent response look like, and how will it differ from an average or incorrect response? While these points are addressed under the heading of the 'final' guiding question, they are actually vital throughout the assessment creation process. This is the stage where you will be able to double check your assessment prompts to ensure that they elicit the quality of evidence necessary for student mastery (as determined earlier this chapter). Further, by undergoing this process you will be able to clearly articulate the elements and features of successful responses to your test items.

As noted earlier, you can use standards, district curriculum guides, resources on the Internet, professional organizations, textbooks and standardized tests to determine what it means for a child in your grade level to achieve at high levels. Here are some more in-depth suggestions about using some of these resources to establish the proper standard for student performance.

Measuring Progress Toward Your Goals

- (1) Depend on the other teachers that you work with. While you will likely spend many hours looking at student work and assessment results on your own, looking at student work with colleagues is a growing practice among effective teachers. Group consideration of student work enables you to check your expectations for students and tap into the professional experience and unique perspective of other teachers about what might hold students back from fulfilling their true potential. See **Protocols for Evaluating Student Work** in the Toolkit (p. 18). ✕
- (2) Compare and contrast your students' work with exemplary work of students of a similar age. New teachers and veterans alike find it very useful to look at their students' work alongside examples of student work that have met high standards. The simplest and most cost-effective means of obtaining exemplary work is from veteran teachers in your school, district, or region. Veteran teachers will have developed a keen eye for strong work and will probably have samples available to show you.

To ensure that we are providing our students with an education equal to the education received by students in wealthier communities, we need to measure our students' achievement and compare it with that of their counterparts in those wealthier communities. Without this measurement and comparison, we run the risk of perpetuating the educational inequity that has plagued so many children in our nation for so long.

Jason Botel, Baltimore '97
Executive Director, KIPP Ujima Village
Academy KIBB Baltimore

Your regional office also has sets of computer CDs produced by Exemplars © that contain examples of student work at four different levels (novice, apprentice, practitioner, and expert) for a variety of performance tasks in math, science, writing, and reading. You can assign these performance tasks to your own students ("students will publish a propaganda newspaper, taking a pro-patriot or pro-loyalist point of view on the Boston Massacre") and then compare their work to the examples. The annotated examples of student work can be used to help you answer two questions: "Is what I consider quality student work also considered quality by others?" and "What does 'excellent' achievement look like?"

Once you have an idea of the quality of work you should expect from your students, you will need to develop a standard grading system to evaluate their work. Grading systems allow you to define and articulate what specific degrees of mastery on different prompts or tasks will look like. They set the bar for success on your assessment and guide you in classifying and interpreting student responses. In doing so, they help paint a reliable picture of student performance on the learning goals covered in your assessment. There are many different grading tools that teachers commonly use when evaluating student performance. In this section we will discuss two of the most effective tools – anchor papers and rubrics.

Anchor Papers

For many assessment types it will be essential to undergo the process of creating "**anchor papers**" – the writing and classifying of different student responses to open-ended prompts. After designing these prompts, teachers often create an anchor paper for each level of student mastery on their grading scale to help differentiate qualities of various responses. These papers will greatly help clarify your vision of student mastery across the spectrum of proficiency levels. Anchor papers enable you to visualize potential gaps between how your students might respond versus how you would like them to respond, so that you can prepare them to accomplish the latter. Thus, these tools will aid your instruction in addition to providing you with a clear, rigorous, and standardized grading system for accurately evaluating your students' completed work.

Rubrics

Another effective way to develop a standard method for assigning grades is developing sliding scales, or **rubrics**. There are two types of rubrics that you can develop – one for your own use, when planning and evaluating substantive responses to questions, and one for your students, when outlining the expectations of a performance task. Both types go beyond typical checklists by stating explicit outcomes for a specific performance and delineating different levels of quality for that performance. Both are created before a lesson begins to help students meet grade-level expectations.

Rubrics to anticipate student responses

The first kind of rubric is an internal document that helps a teacher anticipate how students might interpret and relate to a particular test question. The rubric below, adopted from the state of Maine's Department of Education⁸, shows a grading system that provides a fair, balanced framework for consistently evaluating responses to open-ended math prompts. Notice how this rubric breaks down the elements of a student's response and categorizes them under different proficiencies.

Maine Holistic Rubric for Mathematics Open-Ended Items Source: Maine Department of Education Subjects: <i>Mathematics</i> Grade(s) <i>Not specified</i>	
4	A correct solution and an appropriate strategy are shown or explained and the solution is shown with correct label or description if necessary.
3	<ul style="list-style-type: none">• A complete, appropriate strategy is shown or explained but:<ul style="list-style-type: none">- an incorrect solution is given due to a simple computational or other error or- no solution is given.• A correct solution is given with no solution strategy or explanation shown.• A correct solution and appropriate strategy is shown or explained, but not labeled correctly when necessary
2	<ul style="list-style-type: none">• Some parts of an appropriate strategy are shown or explained, but some key elements are missing.• Some parts of an appropriate strategy are shown or explained, along with some inappropriate parts.• Appropriate strategy shown or explained, but implemented incorrectly.
1	<ul style="list-style-type: none">• Some work or explanation shown beyond re-copying data, but work would not lead to a correct solution.• One or more incorrect approaches attempted or explained.
0	<ul style="list-style-type: none">• No work or solution shown or explained.• Incorrect solution and no work shown or explained.• Some data from the problem copied over, but no evidence of any strategy is shown or explained.

⁸ Math Rubrics, http://intranet.cps.k12.il.us/Assessments/Ideas_and_Rubrics/Rubric_Bank/MathRubrics.pdf, accessed 12/20/07

Measuring Progress Toward Your Goals

While it serves as a reliable and relatively efficient grading tool, the rubric above does not feature anchor examples of student work to illustrate what the different proficiencies look like. Many valuable rubrics also include these samples of student work to help delineate between different levels of potential responses. See how the rubric below accomplishes this:

Question: Why did the colonists in Massachusetts rise up against the British in the 1770s?

<p>"To be free."</p> <p>"To protect their families."</p> <p>"To prove their strength."</p> <p>"They were angry about the tea tax."</p> <p>"They felt mistreated by King George."</p> <p>"Because they were taunted by the British army."</p> <p>"They were being taxed on tea without getting representation in Parliament."</p> <p>"They felt threatened when the British shut down the Boston harbor and installed a royal governor."</p> <p>"The British made a number of political gestures that compromised the growing autonomy of the American colonies, including the imposition of taxes, the regulation of trade, the installation of troops, and the appointment of a royal governor."</p> <p>"This question presumes that all colonists rose up against the British, which is not the case. Colonists in America were divided into loyalists and rebels, the former group finding security and/or economic benefit in their association with King George. The rebels, on the other hand, found the crown's tightening financial and military grip on the independent colonies a great burden, resenting the taxes on stamps and tea..."</p>	<p>1—These responses are not relevant because they do not address the particular historical issues at play, focusing instead on generalities.</p> <p>2—These responses are of higher quality than the first set because they apply a relevant fact to their answer.</p> <p>3—These responses are even better because they consider two facts and make a logical connection between them.</p> <p>4—This response is of a higher quality than the previous ones because the student refers to a number of relevant facts and synthesizes them into a complete explanation.</p> <p>5—This response is more abstract and complex than all of the others. It challenges the generalization implied by the question by referring to a case in which the generalization may not be true. The student goes on to answer the question as intended with a lengthy, extended response.</p>
---	---

By anticipating these various tiers of responses and distinguishing between them, effective teachers are able to envision an ideal answer, the ways in which their students may typically respond, and what it would take to move students from one level to another. Of course, since this kind of rubric supplies desired responses, you would not distribute it before the test. You would, however, ensure that classroom instruction prepared your class to accomplish the highest level of the rubric. You could also show your students examples of the kind of sophistication expected in their work, perhaps by reviewing a different question and a sample set of answers.

Rubrics to make expectations transparent

The second type of rubric is a public document; teachers utilizing authentic assessments – projects, demonstrations, speeches, etc. – should give students rubrics along with the actual assignment. These rubrics often take the form of a table, with criteria on one axis and degrees of accomplishment on the other axis.

Consider, for example, the rubric for a performance task in which sixth-grade students create a 10-page punctuation handbook, with each page focusing on one punctuation mark. Each page must have a title,

illustration, explanation of the punctuation mark's function, and a grade-level appropriate example sentence using the punctuation mark.

Rubric for Grading "Punctuation Handbook"

	1 (Beginning)	2 (Developing)	3 (Accomplished)	4 (Exemplary)
Complete Pages	Three or more pages are missing one of the following (title, explanation, illustration, or example sentence).	1-2 pages are missing one of the following (title, explanation, illustration, or example sentence).	There are 10 complete pages (each page has a title, explanation, illustration, and example sentence).	There are more than 10 complete pages (each with a title, explanation, illustration and example sentence).
Correct Explanation of Punctuation Mark Function	Three or more explanations of the functions are explained incorrectly.	1-2 explanations of the functions are explained incorrectly.	All 10 explanations of the functions are explained correctly.	If more than 10 punctuation marks were included, all of their functions were explained correctly.
Sentence Quality of Example Sentences	The example sentences are simple sentences. (<i>The cat's tail is long.</i>)	The example sentences are simple sixth-grade sentences. (<i>The cat's long tail moved back and forth.</i>)	The examples are solid sixth-grade sentences. (<i>The cat's long tail quickly swished back and forth.</i>)	The examples are interesting and creative six-grade sentences. (<i>The cat's long tail quickly swished back and forth, a sure sign she was preparing to pounce on her dinner.</i>)
Overall Quality of Book	The book is messy and/or difficult to read.	The book is somewhat neat and easy to read.	The book is neat and easy to read.	The book is creative, colorful, neat, and easy to read.

Teachers find rubrics appealing both as scoring tools and student motivators. As scoring tools, rubrics save the teacher's time by making it easier to process an otherwise unwieldy student project, paper or presentation. A rubric provides illustrations of various degrees of proficiency and gives the teacher clear, fair criteria for evaluating student work. Additionally, a well-developed rubric lays out clearly for the students what the expectations for a particular performance task will be. Students are more motivated to achieve if they fully understand the requirements for success and are able to evaluate their progress towards that success before the final product is due.

Look at **Rubrics** in the Toolkit for more information (pp. 19-21). ✖ You can also consult with veteran teachers and use the resources in your region (e.g. the Student Achievement Toolkit, PDs) to view quality rubrics that you can use in your classroom.

II. Diagnostic Assessment

Once you develop summative assessments to help you plan where you're going, diagnostic assessments can tell you where to begin so you know how far you'll need to travel. Diagnostic assessments, which in general should be administered prior to the introduction of any new material, are most often conducted once at the beginning of the year and then again at the beginning of each unit. There are two general reasons to use diagnostic assessments.

Measuring Progress Toward Your Goals

- (1) We need a baseline against which to compare future academic gains. If you set a goal for your students to improve at least 1.5 grade-levels in their reading abilities over the course of the year, you need to determine their starting grade-level. If you set a goal for your students to be able to measure distance, mass, and temperature in standard and metric units by the end of a six-week unit, you need to determine their measuring ability before the unit begins. Identifying where students currently perform allows you to compare that baseline data with the results from the end-of-unit or end-of-year assessment. Tools used for this purpose often need to be quantitative in nature so that comparisons can be made across spans of time.
- (2) We must evaluate the strengths and weaknesses of our students so that we can shape our teaching accordingly. If your students lack the prerequisite knowledge necessary for achieving the units' or year's learning goals, your teaching will not be effective without filling in those gaps. Alternatively, your students may have already mastered sections of the curriculum that you expect to cover, and you should not spend time teaching what they already know. You need to reach all students by beginning instruction at their current academic level. Otherwise, you risk frustrating, discouraging, or boring them.

With these two aims in mind, administer diagnostic assessments to your students at the beginning of the year. You should also diagnose your students' knowledge and skills at the beginning of each unit so that you can more efficiently target their strengths and weaknesses and thus push their learning and thinking as far as possible.

Be Aware of Adopting Others' Assumptions About Your Students

In every case, your determination of a particular child's or group of children's needs should come from a legitimate diagnostic assessment, whether that takes the form of informal questioning or a commercially scored standardized test. Unfortunately, it is all too easy to accept impressions of a child's ability –whether positive or negative – that come to you from other sources. As a newcomer to your school community, you can communicate to students that they have a fresh opportunity to put their best feet forward, despite their past performance or supposed reputation.

The next section, "Designing Diagnostics," addresses the use of diagnostics to determine these strengths and weaknesses, as well as individual students' learning characteristics, styles, and preferences. The Toolkit in your *Learning Theory* course contains ready-made **Learning Style Inventories** that can serve this purpose as well (pp. 1-2) ✖.

Designing Diagnostics

Diagnostic assessments come in many shapes and sizes. They can be as simple as a journal entry that asks students to answer a particular question that would reveal their general knowledge of a given topic. By providing the prompt, "Why do the seasons change?" before a series of lessons on planetary rotation, you could uncover information about student readiness and misconceptions; for example, you'll see if students attribute seasons to some cyclical pattern of the weather, if they believe the earth's distance to the sun is a factor, or if they recognize that planetary axis affects where the sun's rays hit. Many diagnostics, however, will be necessarily more complicated than a single question. In this section we discuss the different types of questions used on diagnostic assessments, as well as how to design these questions so they reveal the necessary information.

Types of Diagnostic Questions

In general, there are two types of diagnostic questions. One set assess **"readiness"** – students' proficiency on the knowledge and skills prerequisite to learning grade-level material. A second set – **"pre-test" questions** – assesses student mastery of the grade-level learning goals you plan to teach, as well as student beliefs, interests, and prior exposure to this content.

Student readiness

How do you design a diagnostic to determine if your students are ready to take on grade-level content? Begin by studying the learning goals from your long-term plan. Think about the foundational knowledge and skills your students need in order to engage with the goals in your plans. What knowledge or understandings must come before your grade-level content? What should students have learned during the last two years in order to be prepared for your class? If you were teaching genetics, for instance, you could assess student understanding of fractions and proportions to determine their readiness for understanding Punnett squares. Similarly, before beginning a unit on analyzing poetry you would probably need to assess students' knowledge of metaphors, allusions, and other literary devices.

These underlying prerequisites are not explicitly included in your standards, so you should look at the standards, assessments, or textbooks from one or more grade-levels below your class. You may also look at some pre-existing diagnostics from your subject area as they can tell you what other assessment writers think students should know before entering your class. Once you identify these foundational skills, use them as the centerpiece of your diagnostic. This will allow you to target your instruction on the prerequisites your students need, a crucial component of effective teaching. Not only do foundational knowledge and skills prepare students for achievement in your class, they also set up students for future success, both in school and life.

At the beginning of the year, I was required to administer a series of diagnostic tests to my kindergarten students. At first I did not understand why I was testing such young students, nor did I understand what the results of the tests meant. Well, I did some detective work and soon came to find out that a large majority of my 18 kindergarten students were testing on a pre-K level or lower. They were already so far behind. That was my wake up call and what charged me to work with more urgency than ever to ensure that they would leave performing at or above grade level.

Mark Williams, New Jersey '00
Managing Director of Design Operations, TSD
Teach For America

Pre-test questions

Educational measurement expert Anthony Nitko recommends that teachers assess their students' attitudes towards, knowledge of, beliefs about, and experience with a topic in order to make good instructional choices. Teachers can add or subtract objectives from their curriculum based on these diagnostics, as well as incorporate student interests and attitudes into specific lessons.

Below are some different categories of "pre-test" questions you can use to gauge students' conceptual knowledge of your subject, as well as their more visceral responses to the material. Incorporating assessments that assess both categories can help the teacher shape instruction to serve students' needs.

- Gauge students' **academic experience** with the topic: "Have you ever studied genetics? When? What stands out?" You may learn that some students reconstructed the double helix for last year's science fair, and you can use their model for your lesson on Watson, Crick and Franklin.
- Test students' **knowledge of the technical terms** associated with the topic: "Describe each of these in your own words—DNA, chromosomes, Punnett Square." This type of question allows you to gauge how much vocabulary work your students will need before beginning the more substantive, conceptual learning.
- Determine students' **knowledge of an explanatory model**: "Explain how genes determine what we look like. Make a series of pictures if you wish." By examining the way a student conceives of a

Measuring Progress Toward Your Goals

problem conceptually, you can begin to see which pieces of the puzzle you will need to fill in, if any. The earlier example about seasons may reveal misconceptions that you will then know to address.

- Distill students' **awareness of common knowledge** associated with the topic: "Imagine you are a doctor, and a couple asks you what you think their child would look like if they had a baby. What sorts of questions would you ask them?" Students may not know the technical or conceptual terms associated with a particular subject, but they may be familiar with the practical applications of your lesson. Tapping into that awareness will allow you to later frame your instruction with students' prior knowledge in mind.
- Assess students' **attitude** about a topic: "What do you like about studying science? What don't you like?" Every teacher wants to be prepared for their students' initial reactions so they will know how hard they will have to work to invest students in the subject.

Comprehensive diagnostics that assess students' prior mastery of a whole grade level's worth of knowledge and skills may be the most difficult to design. See the Toolkit for an example of a fourth grade **Math Diagnostic** that one corps member created (p. 22). ✖ When creating your diagnostic, think carefully about the information you need to gather from students. At minimum, you should always administer a diagnostic that assesses student readiness at the beginning of the year. During the year you may also find it useful to create diagnostics with some "pre-test" questions, while continuing to diagnose students on prerequisite skills. Constantly reflect on what else you need to know about students in order to better reach their current levels and meet their needs.

Crafting Valid Questions

In the previous section, “Summative Assessment,” we discussed in detail how to write effective assessment items that are both valid and reliable. You should use the same guidelines in creating your diagnostic. However, for your diagnostic to provide even greater detail about a student’s academic readiness for specific skills, you should design your assessment to determine the particular aspects of the task your students have already mastered as well as the elements of the task with which they still struggle. To do this, you need to **scaffold** your questions to progress from more basic concepts to more complex. Scaffolding your questions (as discussed earlier in this chapter) increases the validity of your assessment and provides you with more nuanced information about your students’ readiness to learn grade-level goals. Examine the sample kindergarten math assignment and math diagnostic below. Notice how they scaffold questions from various tiers on the hierarchy of skills.

Scaffolded Math Assessment- Kindergarten

Standard: Sort objects into groups by an attribute and begin to explain how the grouping was done.

Teacher Directions	Student Results	Student is able to...
Materials: 20-25 sort-able manipulatives, Three bowls/cups		
Show the student two identical manipulatives. Ask the student, “Are these the same, or are they different?”	Student says manipulatives are the SAME	match objects that are alike
Give the student six manipulatives, three each of two different shapes/colors. Provide two bowls/cups. Ask the student to put the things that are the same together.	Student groups two types of manipulatives	sort two colors/shapes of objects into two groups
Give the student nine manipulatives, three each of three different shapes/colors. Provide three bowls/cups. Ask the student to put the things that are the same color, shape, or size together.	Student groups three types of manipulatives	sort three colors/shapes of objects into three groups
Give the student a pile of manipulatives, in various shapes/colors. Provide three bowls/cups. Ask the student to make three groups of things that are the same, however they want.	Student groups three types of manipulatives independently	sort a mixed up quantity of objects into at least three groups of their own choice
Using the groups the student just created, ask, “What makes these the same- why are these together?”	Student tells how groups of manipulatives are alike with description (blues, reds, greens)	sort objects into groups by an attribute (shape, color, size) of their own choice, and tell the teacher some reason why the objects in each group are alike
Using the groups the student just created, ask, “How did you sort these?”	Student tells how groups of manipulatives are alike with category (color, size)	use the words “shape,” “color,” or “size” to identify how they sorted objects
Dump out the manipulatives that the student just sorted onto the table. Say, “Now mix up your objects and sort them in a different way.”	Student re-groups three types of manipulatives, sorting by a different attribute.	sort a group of objects in at least two different ways upon prompting

Measuring Progress Toward Your Goals

By scaffolding questions these examples are able to pinpoint which objectives students have already mastered and precisely where their understanding of the learning goal breaks down. In doing so, the results can tell a teacher where exactly to begin instruction for a particular class. You should include scaffolding in any assessment where the results will be used to adjust subsequent instruction. As mentioned in the “Summative Assessment” section, this means that scaffolding should be used in diagnostic and formative assessments, but not typically in summative assessments (where results may not be used to re-teach content).

Sample Diagnostic
(a) 17 (b) 15 (c) 433 (d) 337 (e) 654 (f) 43 (g) 63 (h) 562 (i) 667
$$\begin{array}{r} -12 \\ 5 \end{array}$$
$$\begin{array}{r} -13 \\ 2 \end{array}$$
$$\begin{array}{r} -132 \\ 301 \end{array}$$
$$\begin{array}{r} -226 \\ 111 \end{array}$$
$$\begin{array}{r} -423 \\ 231 \end{array}$$
$$\begin{array}{r} -25 \\ 12 \end{array}$$
$$\begin{array}{r} -57 \\ 14 \end{array}$$
$$\begin{array}{r} -453 \\ 111 \end{array}$$
$$\begin{array}{r} -374 \\ 313 \end{array}$$

a. Analysis: Hierarchy of skills

Objectives	Score
(1) Subtract two two-digit numbers. [Items (a) and (b).]	2 out of 2
(2) Subtract two three-digit numbers when borrowing is not needed. [Items (c), (d), and (e).]	3 out of 3
(3) Subtract 2-digit numbers with borrowing from tens' place. [Items (f) and (g).]	0 out of 2
(4) Subtract 3-digit numbers requiring borrowing from either tens' or hundreds' place. [Items (h) and (i).]	0 out of 2

Evaluation and conclusion

By examining the results of the assessment, it is clear that the student has not mastered objectives 3 and 4. This information would lead the teacher to review the concept of borrowing. It will not be necessary to go over objectives 1 and 2.

In preparing to enter the classroom, many beginning teachers search for tools that they can use quickly and immediately. However, by adopting a pre-made diagnostic without thinking about whether it “fits” their students, new teachers fail to gather the information they need to effectively begin instruction. The process of selecting appropriate diagnostic questions varies dramatically depending on your grade level, content area, or school district. Different classes will require different types and levels of evidence to serve your different students.

Selecting Diagnostics

To help you find the right tool, use the Student Achievement Toolkit, textbooks, school and district requirements, and experienced teachers. You may find and use professionally prepared diagnostics, but don't fall into the trap of automatically using any tool without understanding its strengths and weaknesses. As you choose or design a diagnostic, it is essential that you critically evaluate the appropriateness of the tool for your class. To do so, consider the following: What information is my tool providing (or not providing) and why is it important? How will I use the results to drive my instruction? What supplements will I need to gather more detailed information about all of my students? The best diagnostic assessments will provide increasingly detailed information about the prior knowledge and skills of most, if not all, students. Reflect on your diagnostic tool to determine if it provides all the essential information. You may find you need to alter, add, or remove questions to match your unit or course goals. Or you may consider administering different diagnostics to students who are significantly beyond (or behind) the academic level of the majority of the class. Strategically choose those questions that provide the best information possible about your students' prior knowledge and skills. Only by tailoring the assessment to your particular circumstances will you be able to start instruction at the right point for all your students.

Assessing your students is the most important thing that you will do in the beginning of the year. You need a baseline of what skills they have and what skills you need to teach. Use your diagnostic to start your tracking RIGHT AWAY. This way you can see concretely what each student needs to succeed.

Abigail Rossetti, Las Vegas '04
Program Director, Las Vegas Valley
Teach For America

Since a diagnostic generally tests skills that students may not have yet mastered, your students may feel understandably frustrated if they struggle with its questions. Emphasize the purpose of the diagnostic to your students in order to avoid making your students feel inadequate while taking the test.

While not necessarily comprehensive, a diagnostic can provide a snapshot of what students do and do not know, allowing teachers to schedule instruction accordingly. In Chapter Six, you will learn about the ways in which you can effectively group students by ability level or interest, a technique enabled by diagnosis. Further, in Chapter

Four and in the “Recording Results Effectively” section at the end of this course, you will see how some classrooms make charts or graphs of individual students’ current performance levels on particular skills, regularly updating these records based on incremental progress. This data-driven focus helps teachers stay accountable to the needs in their classroom, and it helps students recognize their own growth.

Throughout this course, you will hear much more about assessment as it is such an integral part of the learning process. But now that you know how to set the destination of student achievement (summative assessment) and determine starting points (diagnosis), you are ready to chart the path in between those two poles. As we discuss lesson planning in Chapter Five, keep an eye out for the third type of assessment: formative assessments used during lessons and units, which allow us to ensure that our entire team of climbers keeps up at all points along the journey.

Conclusion and Key Concepts

We began this chapter by noting that before we begin lesson planning, we must know where we are headed by creating assessments.

- In order to close the achievement gap for our students, we must assess our students’ academic progress. We need a baseline against which to compare future academic gains. We also must evaluate the strengths and weaknesses of our students so that we can shape our teaching accordingly. Most importantly, we must hold ourselves accountable to real, measurable academic gains by our students.
- Diagnostic assessment tools reveal what your students know coming into a lesson, unit, or course. Formative assessment tools monitor students’ understanding of the material during your lessons and throughout the course of a unit. Summative assessment tools measure students’ understanding of concepts that you have already taught, and occur at the end of a unit or the end of the year. Summative assessments can be tests and quizzes, performance tasks, portfolios or journals.
- When writing summative assessments as planning tools, be sure to determine the evidence you need to see from students to judge their mastery and which methods or assessment types are best for your content area and learning goals.

Measuring Progress Toward Your Goals

- Your summative assessments must be valid, reliable, and efficient in order to serve as valuable tools for determining whether you have met your instructional goals. This means testing exactly (and only) what you say you will to test; crafting questions that test multiple ideas at once, while not unintentionally revealing answers or allowing for unintended responses; grading and administering tests fairly and consistently; being conscious of potential biases; and considering the length of your test.
- When writing diagnostics, you should scaffold questions, starting from the most basic parts of a learning goal to the most complex, to gather detailed information about the extent of your students' understanding. Include questions that assess student readiness for grade-level content and pre-test items that reveal your students' prior mastery of, experience with, and interest towards a particular set of learning goals – information that is vital for creating your unit, long-term, and lesson plans. Think critically about what information you need and what your diagnostic will actually reveal, and adjust it accordingly.

You should now grasp that the true function of assessment is not only to provide an objective measure of student achievement but also to set high, targeted expectations for students based on standards, to identify concepts and skills in need of reinforcement, and to motivate students to perform at higher and higher levels. The periodic and quantitative measurement of student progress allows you to measure, pace, and motivate yourself and your students in the steady march from “point A” to “point B.”

Once you determine what your students already know through diagnostics, as well as how students are going to demonstrate their new knowledge and skills, you need to develop a pathway for moving them forward. That's what long-term, unit, and lesson planning are for.

Long-Term Planning

Chapter Three

- I. The Purposes of a Long-Term Plan
- II. The Four-Step Long-Term Planning Process
 - A. Use the Standards to Determine Learning Goals
 - B. Group Learning Goals Into Units
 - C. Logically Order the Units and Plot them on the School Calendar
 - D. Continually Adjusting Your Plan
- III. FAQ on Long-Term Planning

Introduction

Imagine trying to hike the Appalachian Trail from Springer Mountain, Georgia to Katahdin, Maine without a map, without a compass, without a watch, and without knowing the distance between locations. Now, imagine achieving significant academic gains for your students without having a clear sense of how you are going to get there and how long each step will take.

We outlined three questions at the beginning of this course, and we have already discussed (a) what students should know, understand and be able to do by the end of the year (Chapter One), and (b) how they will demonstrate their mastery (Chapter Two).

The third question asks how you should plan instruction to get students to reach your goals. The remaining chapters in this course discuss how to plan and deliver instruction so that your students can meet the expectations you set. Creating a long-term plan is the first step in this process.

A long-term plan is a document that charts how you have logically grouped and sequenced the standards-aligned learning goals for your course into units that build upon one another conceptually, leading towards year-end goals.

Many well-intentioned teachers have entered the classroom with the noble pledge to teach students as much as possible each day. In reality, such teachers are likely to under-serve their students because the class's path will not be the most efficient one to the end goals. By creating a long-term plan—which groups learning goals for efficient instruction and provides a timeline for pacing throughout the year—these teachers gain the focus and organization necessary to ensure that by the end of the year, their students will have mastered their grade-level standards (and perhaps even more).

It may seem challenging at first, but the long-term planning process creates an essential tool for leading your students to significant academic gains. For a sneak preview, check out **Sample Long-Term Plan** in the Toolkit (pp. 23-33). ✖ This chapter will discuss the high returns afforded by investing in a long-term plan, and will explore the four-step process for developing one:

- (1) Use the standards to determine learning goals**
- (2) Group learning goals into units**
- (3) Logically order the units and plot them on the school calendar**
- (4) Continually adjust your plan**

Long-Term Planning

After outlining the long-term planning process, we will explore some of the questions that arise when creating a long-term plan, such as how to account for and set goals for a wide range of students' abilities and how and when to modify the long-term plan throughout the course of the year.

I. The Purposes Of A Long-Term Plan

Why should you create a long-term plan? Why is long-term planning a prerequisite to success? Simply stated, having a clear sense of where you and your students are headed and how you will get there provides the focus, direction, and urgency that will allow you to ensure significant academic gains in your classroom. Specifically, long-term plans have the following benefits:

Significant gains are hard, and the only way to keep your eye on the prize is to set intermediate goals that are achievable each month or each unit. The long-term plan makes you constantly reassess where you are and where you're headed so you can correct errors sooner rather than later. Teaching without a long-term plan is like going on a road trip without an atlas: it's bound to get you lost.

Sonja Elder, Bay Area '03
1st Grade Bilingual

A long-term plan drives students and teachers to purposefully prioritize actions that lead to the achievement of the ultimate goal.

Knowing where you want your students to be by the end of the year helps you, as the instructional leader, to make difficult decisions about where to focus your resources and energy. While teaching, you will sometimes face an overwhelming stream of demands for your time, energy, and focus. Especially in your first months in the classroom, you may have the paralyzing feeling that every issue that confronts you is high priority. By establishing clear end goals for your students, you will have a ready litmus test for choosing from among those demands, and you will be much less likely to become side-tracked by objectives, lessons, activities, or time expenditures that do not advance

your ultimate quest for academic achievement. Plus, even if you do find yourself momentarily lost, having a long-term plan will enable you to get back on track easily.

A long-term plan allows you to gauge your progress towards your end-goals. The long-term plan allows you to set your pace for the year. You will want to refer to your long-term plan frequently and ask yourself, "Am I where I need to be? Am I spending too much time on certain skills and concepts given the other skills and concepts I have left to teach?" This reflection process enables you to continuously make purposeful instructional decisions that will lead to daily, weekly, and monthly academic progress toward your big goal.

Developing a long-term plan encourages you to purposefully contemplate what you really want students to be able to know and do by the end of the school year. Developing this clear vision of what you want students to accomplish will keep you on track to make a meaningful impact in your students' lives. Further, once you have established this thorough understanding of your content area, you can begin to identify and plan for potential student misunderstandings, remediation and enrichment instruction, and connections between concepts and skills throughout the year. These steps will increase your ability to maintain rigorous instruction that strategically leads your students to reach their academic goals.

Lastly, having a plan provides you with the comfort and security of knowing what you will teach throughout the year. A long-term plan liberates you from the troubling cycle of "day-to-day" living and planning. With an effective vision for the year, you can anticipate and respond to changing classroom realities, instead of struggling daily to decide what you will teach next. Thus, a long-term plan is a key

tool for making purposeful, proactive decisions that will lead your students to achieve significant academic growth.

II. The Four-Step Long-Term Planning Process

The most effective long-term plans take a big-picture, high-flying look at the year. The creation of a long-term plan is the outermost layer of your planning, and one that provides you with a rather blunt instrument for setting and measuring student achievement. There are four basic steps to developing this plan.

A. Use The Standards To Determine Learning Goals

At this point, even if you have a tentative indication that you will teach fifth grade, you probably have little understanding of what a fifth grade should learn. You may know that you will teach seventh grade science this fall in Phoenix yet have no idea what seventh grade science students in Arizona study. That's okay. Even veteran teachers who switch grade levels and content areas face these same questions: "What exactly do I teach? What are students in my class supposed to learn?"

But from reading Chapter One of this course, you already know how to address these concerns: start with the standards. Your state's standards – rather than your personal memories of what you learned in Mrs. Henk's seventh grade class – should drive your expectations and goals for your students. Once you know generally what grade level you've been tentatively assigned, you'll want to seek out those standards (refer to **Internet Links to Regional and National Standards** in the Toolkit pp. 1-2). ✂ When you get a copy of your state and district standards, you should:

Digest the standards to determine the learning goals for the grade level you will teach. Know them inside and out. Why? You and your students will be held accountable to standards, and they serve as the basis for setting equal expectations for all schools in the state. Fully understanding or "unpacking" your standards and learning goals is a challenging, layered process that you will undertake at multiple stages in your planning. To review, in Chapter One we first introduced how to read your standards and the sources you can use to clarify their meaning and intent. In Chapter Two we described how to unpack learning goals in greater detail to determine the specific evidence students will need to produce in order to demonstrate mastery on an assessment.

At this point, however, we will step back from this level of detail. For the purposes of a long-term plan, it is necessary to use standards to identify or create aligned learning goals. Remember that different states vary in the level of guidance they provide around standards. Many states break down their broad standards into more specific learning goals (bundles of skills and knowledge) while other states have standards that already exist at a learning goal-level of detail. However, if your state does *not* provide a

Standard #1

Learning Goal A

Learning Goal B

Learning Goal C

Standard #2

Learning Goal D

Learning Goal E

Learning Goal F

Learning Goal G

Each standard is the broadest cut of what students are expected to know or be able to do; learning goals are a level more specific.

Long-Term Planning

sufficient level of specificity in its standards, it will be your responsibility to create standards-aligned learning goals to use in your long-term plan. Identifying (and understanding) the learning goals for your grade level or content area is essential for the creation of your long-term plan.

To help re-illustrate the difference between learning goals and standards, examine the following mathematics state standards from Georgia:

Georgia Performance Standards: Mathematics 1 (Algebra)⁹

MM1A1. Students will explore and interpret the characteristics of functions, using graphs, tables, and simple algebraic techniques.

- a. Represent functions using function notation.
- b. Graph the basic functions $f(x) = x^n$, where $n = 1$ to 3 , $f(x) = x$, $f(x) = |x|$, and $f(x) = 1/x$.
- c. Graph transformations of basic functions including vertical shifts, stretches, and shrinks, as well as reflections across the x - and y -axes.
- d. Investigate and explain the characteristics of a function: domain, range, zeros, intercepts, intervals of increase and decrease, maximum and minimum values, and end behavior.
- e. Relate to a given context the characteristics of a function, and use graphs and tables to investigate its behavior.
- f. Recognize sequences as functions with domains that are whole numbers.
- g. Explore rates of change, comparing constant rates of change (i.e., slope) versus variable rates of change. Compare rates of change of linear, quadratic, square root, and other function families.
- h. Determine graphically and algebraically whether a function has symmetry and whether it is even, odd, or neither.
- i. Understand that any equation in x can be interpreted as the equation $f(x) = g(x)$, and interpret the solutions of the equation as the x -value(s) of the intersection point(s) of the graphs of $y = f(x)$ and $y = g(x)$.

The example above shows how a broad standard (in bold) can be broken into a bundled list of aligned learning goals. If your state does not provide this level of guidance, there are a series of tools that can help you digest your standards to derive aligned learning goals. As Chapter One outlined, seek out the advice of your district's curriculum guide, the innumerable resources on the Internet, and colleagues who know their way around these initially intimidating documents. Examining samples of assessments and exemplary student work can also help you determine how to break your standards into more manageable units.

⁹ Standards HS Math 1 July 2006.

<http://www.georgiastandards.org/DMGetDocument.aspx/Standards%20HS%20Math%201%20July%202006.pdf?p=6C6799F8C1371F6A53EDBCD81AFF25221C13C3F28F0C3131F77C63ACAF4698&Type=D>, accessed 12/20/07.

Connection to the Big Goal

Remember that unpacking your standards and determining your vision for student achievement are key steps in the creation of your big goal. Developing your big goal before your long-term plan allows you to be more effective and efficient as you craft your roadmap for the year. Later (in Step Four) we will take extra measures to ensure that your long-term plan is aligned with your big goal. However, don't hesitate to look at your big goal now as you formulate your year-long plans.

Remember to refer to Chapters One and Two for guidance on how to interpret and unpack your standards. For more information, you can also look at the standards for the grade levels above and below the level you teach. Although it is not as important to know these standards thoroughly, familiarity with them will provide the foundation for your grade level standards and illustrate the knowledge continuum of which your standards are a part. Further, it can be helpful to examine standards written by other outside organizations, although such standards should only be supplemental to what is outlined in your state and district. Following this guidance will allow you to establish a solid vision of what students need to accomplish over the course of the year.

So, the first step of long-term planning is to familiarize yourself with the standards and determine your classroom learning goals. You will see how these broad standards (e.g. "students will investigate structure and function in living systems") and the more specific learning goals (e.g. "students will identify, compare and contrast levels of organization including cells, tissues, organs, organ systems and organisms") provide direction and focus to your instruction. They may not be grouped into units (this is discussed in the next section), ordered in a logical sequence, or broken down into discrete lesson objectives (these skills are covered in Chapter Four), but by internalizing these standards and learning goals and using them to guide your instruction, you will find that your teaching, your students, and the academic achievement that occurs in your classroom will be more focused and consequently more successful.

B. Group Learning Goals into Units

Your list of learning goals provides a framework for what students should know and be able to do by the end of the year. However, as you will notice when you examine them, learning goals are not always presented in a particular order.

The next step in the long-term planning process is to group these learning goals into smaller "units" that will guide your instruction more specifically during the year or semester and support the efficiency and coherence of the learning process.

Benchmarks

A "benchmark," as the term is most commonly used, refers to periodic progress checks that you implement along the path from an initial diagnosis to the final assessment. As we have already discussed in Chapter Two – and will continue to explore in the next few chapters – teachers need to frequently measure students' incremental progress and understanding. By determining where students stand relative to their starting point and ultimate goal, you can adapt your instruction to help them move forward most effectively. In the case of the long-term plan, measuring student mastery of a group of learning goals is an appropriate benchmark between the beginning-of-year diagnosis and the end-of-year assessment.

This step of the long-term planning process allows you to see the "big picture," — the overarching conceptual organization of your instruction to meet the big goal. It also helps pace your instruction over the course of the year and determine when (between your initial diagnostics and your final assessments) to benchmark student progress.

We will take an in-depth look at unit planning in the next chapter. For the purposes of the long-term plan, however, we are only concerned with sequencing and grouping our learning goals into units that will lead to the achievement of the big goal. To help do this you can utilize multiple sources, including textbooks, curriculum guides, veteran teachers, and the Student Achievement Toolkit that you will receive in your region.

Long-Term Planning

In addition, referring back to your big goal and the unpacked standards and learning goals from Step One will lay the foundation for effectively completing this second step of long-term planning. Regardless of what resources you use, you should always do the following when grouping your standards-aligned learning goals into units:

(1) Ensure that the learning goals you choose to group together share a logical connection that will readily make sense to you and to students. Units created by randomly selecting learning goals from among all the necessary skills lack cohesion and will thereby cause loss of momentum, as students will struggle to understand the relevance and context of different learning experiences. Conversely, linking conceptually related learning goals and planning in way that makes those relationships clear to students will enhance instruction by promoting deeper student understanding of key ideas.

As an example in the box on the next page, consider the Washington, DC standards (in bold) and learning goals (below each standard) for second grade math.¹⁰ A teacher could justifiably regroup some of these learning goals, as several overlap and utilize the same skills. For example, the learning goal “masters addition and corresponding subtraction facts from 0 – 18” from the Number and Operations standard could be presented and reinforced through teaching the learning goal “adds and subtracts money” from the Measurement standard. Likewise, the learning goal of “determines whether numbers are odd or even” could correspond with the first learning goal under the Patterns standard, and “collects, records, and displays data using tables, pictographs, and bar graphs” aligns nicely with “using ordered pairs to locate positions on a simple coordinate grid.”

¹⁰ DCPS Standards, Mathematics, Grade 2. <http://www.k12.dc.us/dcps/curriculum/content/Math/s-ma-2.pdf>, accessed 1/31/07. All Washington, DC standards are available at <http://www.k12.dc.us/dcps/curriculum/curriculum1.html>.

Example Step One: Using the Standards
Second Grade Math Standards—Washington, DC

1) Numbers and Operations: The student interprets multiple uses and forms of numbers and how they relate to each other

Masters addition and corresponding subtraction facts from 0 – 18

Determines whether numbers are odd or even

Reads, compares, and orders whole numbers to 1,000

Uses concrete objects to model and identify place value in three-digit numbers

Adds and subtracts two and three digit numbers with and without regrouping

Skip counts forward and backwards by 2's, 5's and 10's from a given number

Joins and separates equivalent sets of objects to describe multiplication and division

Identifies fractional parts of objects, shapes, and sets of objects

Rounds and estimates sums and differences of two-digit numbers

Solves problems using a variety of strategies

(2) Patterns, Functions, and Algebra: The student generalizes patterns and functional relationships; uses symbols to represent mathematical situations; analyzes change in real and abstract situations

Identifies types of patterns in the real world (repeating, tessellating, etc)

Recognizes and extends geometric and number patterns and explains the rule

Uses patterns to predict and solve problems

Models the commutative and associative properties of addition using concrete objects

Completes number sentences with missing values and operation symbols

Solves number sentences with equalities and inequalities

Describes the functional relationship between pairs of numbers from real-life situations

(3) Data Analysis, Statistics and Probability: The student collects, organizes, represents evaluates and interprets data; makes predictions based on data; applies basic understandings of chance and probability

Collects, records, and displays data using tables, pictographs, and bar graphs

Verifies predictions based on simple probability experiments

Uses data to describe events as more likely or less likely or equally likely

Analyzes and explains results from a survey

(4) Geometry and Spatial Sense: The student analyzes characteristics of two and three-dimensional geometric objects; uses visual and spatial reasoning to analyze mathematical situations

Uses attributes to describe and compare properties of shapes and solids

Identifies & classifies plane & 3-D shapes and their geometrical relationships

Compares and contrasts two and three-dimensional shapes and objects

Identifies & demonstrates slides, flips, and rotations of figures using concrete materials

Matches and creates congruent and symmetrical shapes

Uses ordered pairs to locate positions on a simple coordinate grid

(5) Measurement: The student selects and uses the appropriate tools and units for systems of measurement; applies a variety of techniques to determine measurements

Estimates and measures length, height and perimeter using cm, m, in, and feet

Weights objects to the nearest pound and kilogram

Counts and compares the value of collections of coins up to \$1.00

Adds and subtracts money

Measures and records temperature to nearest 10 degrees using F and C thermometers

Tells time to the quarter-hour and 5-minute intervals

Estimates time and elapsed time using minutes, half-hours and hours

Long-Term Planning

Notice that some of the skills could be reinforced (or even completely taught) during a morning meeting, a time in most elementary school classes that should be used for skill development and review. [This is an important point to note, as elementary teachers should look for opportunities to reinforce skills and concepts at times other than just “math hour” or “language arts time,” and secondary teachers should seek to integrate math, reading, and writing skills into their content area.]

Examine the way that one elementary teacher grouped the DC learning goals. Note that these units are not yet in a particular order, nor are the learning goals in each unit. Consider how the learning goals are grouped differently from the previous example (the numbers in parentheses indicate the standards from which each learning goal originated).

Unit #1

Learning Goal A

Learning Goal D

Learning Goal F

Learning Goal Z

Learning goals, originally housed in different standards, come together in “units” based on their commonalities

Example Step Two: Grouping Your Learning Goals			
A. *Skills to be integrated into morning meetings	B. Geometric Patterns (6 weeks)	C. Number Patterns (6 weeks)	D. Data Analysis (6 weeks)
(1) Determines whether numbers are odd or even (1) Skip counts forward and backwards by 2’s, 5’s and 10’s from a given number (1) Uses concrete objects to model and identify place value in three-digit numbers (3) Collects, records, and displays data using tables, pictographs, and bar graphs (5) Uses a calendar to identify dates; communicates time relationships (days in a week, weeks in a year etc.) (5) Measures and records temperature to the nearest 10 degrees using F and C thermometers (5) Tells time to the quarter-hour and 5-minute intervals (5) Estimates time and elapsed time using minutes, half-hours and hours (1) Identifies fractional parts of objects, shapes, and sets of objects (1) Joins and separates equivalent sets of objects to describe multiplication and division	(2) Identifies types of patterns in the real world (repeating, tessellating , etc.) (2) Recognizes and extends geometric and number patterns and explains the rule (2) Uses patterns to predict and solve problems (4) Uses attributes to describe and compare properties of shapes and solids (4) Identifies and classifies plane and three-dimensional shapes and their geometric relationships (4) Compares and contrasts two and three-dimensional shapes and objects (4) Identifies and demonstrates slides, flips, and rotations of figures using concrete materials (4) Matches and creates congruent and symmetrical shapes	(2) Identifies types of patterns in the real world (repeating , tessellating, etc.) (2) Recognizes and extends geometric and number patterns and explains the rule *(1) Determines whether numbers are odd or even (2) Uses patterns to predict and solve problems (2) Describes the functional relationship between given pairs of numbers from real-life situations (i.e. numbers of people and numbers of eyes)	*(3) Collects, records, and displays data using tables, pictographs, and bar graphs (3) Analyzes and explains results from a survey (3) Verifies predictions based on simple probability experiments (3) Uses data to describe events as more likely or less likely or equally likely (4) Uses ordered pairs to locate positions on a simple coordinate grid

E. Addition and Subtraction (6 weeks)	F. Big Numbers and Basic Algebra (6 weeks)	G. Introduction to Fractions and Division (2 weeks)	H. Measurement (6 weeks)
(1) Masters addition and corresponding subtraction facts from 0 – 18 (5) Counts and compares the value of collections of coins up to \$1.00 (5) Adds and subtracts money *(1) Skip counts forward and backwards by 2's, 5's and 10's from a given number	(1) Adds and subtracts two and three-digit numbers with and without regrouping (1) Rounds and estimates sums and differences of two-digit numbers (1) Reads, compares, and orders whole numbers to 1,000 *(1) Uses concrete objects to model and identify place value in three-digit numbers (2) Models the commutative and associative properties of addition using concrete objects (2) Completes number sentences with missing values and operation symbols (2) Solves number sentences with equalities and inequalities	*(1) Identifies fractional parts of objects, shapes, and sets of objects *(1) Joins and separates equivalent sets of objects to describe multiplication and division	(5) Estimates and measures length, height and perimeter using cm, m, in, and feet (5) Weighs objects to the nearest pound and kilogram *(5) Measures and records temperature to the nearest 10 degrees using F and C thermometers *(5) Tells time to the quarter-hour and 5-minute intervals *(5) Estimates time and elapsed time using minutes, half-hours and hours *(5) Uses a calendar to identify dates; communicates time relationships (days in a week, weeks in a year etc.)

Similarly, you'd miss out on key linkages if you marched through the eighth grade social studies standards instead of seeking out commonalities. These related standards are sprinkled throughout the Texas guidelines¹¹:

- 4D: Analyze the issues of the Philadelphia Convention of 1787, including major compromises and arguments for and against ratification
- 17A: Summarize the purposes for and processes for changing the U.S. Constitution
- 20B: Summarize rights guaranteed in the Bill of Rights

Examine the ways in which different states group their standards to get ideas for how to link yours. North Carolina's World Geography Standards, for example, are grouped into pre-made thematic units based on overarching ideas. Search the web sites listed in **Internet Links to Regional and National Standards** in the Toolkit (pp. 1-2) ✖ for more information

(2) Where applicable, distinguish between (a) facts and concepts, (b) broad principles and themes that crosscut many facts and concepts, and (c) skills to be reinforced regularly. You will quickly see that not all learning goals are created equal. Let's look at five more essential elements from Texas's eighth grade social studies standards:¹²

¹¹ TEKS for Social Studies, Middle School. <http://www.tea.state.tx.us/rules/tac/chapter113/ch113b.html>, accessed 1/31/07. Links to all Texas state standards available at <http://www.tea.state.tx.us/teks/index.html>.

¹² Ibid.

Long-Term Planning

- A. Students will be able to summarize the strengths and weaknesses of the Articles of Confederation.
- B. Students will be able to describe how scientific ideas influenced technological developments during different periods in U.S. history.
- C. Students will be able to trace the development of religious freedom in the United States.
- D. Students will be able to explain and analyze Abraham Lincoln's ideas about liberty, equality, union and government as contained in his first and second inaugural addresses and the Gettysburg Address.
- E. Students will be able to create written, oral, and visual presentations of social studies information.

Notice how learning goals A and D deal with fairly specific facts or concepts that students are expected to know, just as students in reading classes might learn the characteristics of a mystery and then move on to a different unit on biographies. Since the Articles of Confederation and the Gettysburg address are separated by nearly a century, it is fairly safe to say that these two goals would not appear in the same unit.

In contrast, learning goals B and C refer to large swaths of history; they include themes that a class can consider along the historical continuum (imagine a student-created "timeline of technology" in the classroom, built upon during every unit). You might introduce these themes at different times during one of the first few units of the year, but you will revisit them both throughout the semester.

Similarly, learning goal E is a skill you will need to introduce and teach; you simply cannot assume that students will be able to give an impromptu speech, for example. But this is a skill you will revisit over time. As they learn new facts and develop larger thematic understandings, students will regularly produce written, oral and visual presentations, just like students in reading classes will revisit the skill of writing summaries and making predictions about the various genres they learn throughout the year.

Separating larger ideas may allow you to see the forest from the trees, enabling you to create pegs on which to hang the more specific, atomized facts and details of the curriculum. Chapter Four (Unit Planning) will give you ideas for integrating the learning goals of each "bucket" into a cohesive series of lessons through projects, themes, and goals.

C. Logically Order The Units And Plot Them On The School Calendar

Sequencing units

In addition to ensuring that the learning goals allocated to various units cohesively relate, you must also ensure that the sequence and timing of units over the course of the year is logical. By completing this third step of long-term planning you will continue to enhance your content understanding by thinking deeply about how your units build upon each other to maximize student understanding and reach your big goal.

To effectively order units, you will use the same resources, rationale and strategic decision-making process introduced in the prior step of grouping learning goals. Some units include learning goals that are a prerequisite to learning goals in other units.

To create my long-term plan I sat down with a fellow corps member, a calendar, the state standards, and a large cup of coffee. We grouped similar standards into units and then determined how many weeks should be given to each unit. Fitting each unit into the school year was surprisingly difficult, but the plus side was that the process created a sense of urgency in my teaching from the very beginning and it made weekly planning much easier.

**Sam Clark, Greater New Orleans '03
Field Director
Martin O'Malley Gubernatorial Campaign**

Not all standards make those relationships clear, so it will be important for you to critically evaluate the relationships and connections of one standard and unit to another. Doing this will allow you to logically structure your plan to foster student Comprehension of Course Material.

Consider, for example, the second grade math learning goals from DC¹³. The units right now are not sequenced in the most logical and progressive way – geometric patterns should probably come later in the year than number patterns, as understanding of geometric patterns requires knowledge of three-dimensional shapes and an ability to manipulate shapes mentally. The unit on measurement should probably occur before data analysis, because in order to collect data one must often be able to measure dimensions, temperature, and mass. Given these considerations, the grouped units could be reorganized in this near-complete long-term plan, as follows:

Example Step Three: Ordering Your Groupings			
*Skills to be integrated into morning meetings	First Unit: Addition and Subtraction (6 weeks)	Second Unit: Number Patterns (6 weeks)	Third Unit: Measurement (6 weeks)
Fourth Unit: Data Analysis (6 weeks)	Fifth Unit: Big Numbers and Basic Algebra (6 weeks)	Sixth Unit: Geometric Patterns (6 weeks)	Seventh Unit: Introduction to Fractions and Division (2 weeks)

This sequence of units builds from the more concrete (adding and subtracting) to the more abstract (geometric patterns). Skills learned in one unit (measurement) are reinforced and applied in a later unit (data analysis). A language arts teacher might decide to focus first on words (correct usage of plurals and possessives, choosing precise nouns, verbs, adjectives and adverbs), then move on to sentences (avoiding run-ons, adding prepositional phrases and dependent clauses), and paragraphs (topic sentences, transitions, conclusions), all the while practicing full compositions in different styles. By placing the most complicated or highest-level standards-aligned learning goals of your subject area at the end of your year, you have set a goal for your students, and the other units should be organized as stepping-stones to that destination. Similarly, an effective sequence of learning goals and units should progressively lead students to achieve their overarching big goal for the year.

Transferring the plan to the calendar

Once you have determined your unit sequence you can begin to plot your units on a school calendar. In doing so, you gain a holistic perspective of the year that will provide you with a sense of urgency, dedication, and purpose to achieve the end goals.

You should not arbitrarily allocate time to each unit. Rather, like grouping and sequencing your learning goals, you should think critically about how to time your units to most effectively reach your big goal. Consider the following guiding questions as you calendar:

- How long will it take to teach certain topics and what resources can I access to help me estimate appropriate unit lengths?
- Given your desired overarching result, what concepts or learning goals should hold a higher priority, and thus warrant more time?
- Is the plan efficient? Is anything ignored or overemphasized?

When you plot units onto a school calendar, it is important to take into account school breaks such as winter and spring vacation, days devoted to standardized testing, district professional development days,

¹³ DCPS Standards, Mathematics, Grade 2. <http://www.k12.dc.us/dcps/curriculum/content/Math/s-ma-2.pdf>, accessed 1/31/07. All Washington, DC standards are available at <http://www.k12.dc.us/dcps/curriculum/curriculum1.html>.

Long-Term Planning

and deadlines for submitting final grades for the quarter, semester, or year (often, grades must be turned in one to two weeks before the end of the grading period to allow for school-wide processing – you don't want to be caught in the middle of your last unit when final grades need to be turned in). Tentatively plot your units on a school calendar, recognizing various days or weeks that interfere with regular instruction. To see an example of how this can be done, turn to the **Sample Long-Term Plan, Mapped on a Calendar** in the Toolkit (p. 34)✕.

If you finish with more weeks than units, you may be underestimating how long certain topics will take to teach, and you may want to share your plans with a veteran teacher. On the other hand, if you end up with more units than weeks on your calendar you will need to review the learning goals and either regroup them or eliminate non-essential ones once you conduct your diagnostics and determine where your students are already strong. Your unit calendar should also actively plan for remediation, enrichment, and differentiation throughout the year. Schedule opportunities to review and re-teach difficult concepts as well as to extend learning for students who quickly master grade-level standards. Likewise, schedule extra time into your calendar to account for contingencies, if possible. Building extra time into the year's schedule allows you to respond to a variety of factors that may delay or side-track your plans during the year.

Although I used a long-term plan, which outlined both major and minor goals, I learned that one could never anticipate everything that will happen with student learning or within the school environment. A few minutes of revisiting my plans and reflecting on my students' progress each evening helped me to fine-tune them to meet the needs of my students.

Kate Farrar, Los Angeles '94
Principal, Camino Nuevo Charter Academy

Making these adjustments – the final step in the long-term planning process – is vital in creating a long-term plan that is an effective tool toward reaching your goals. The next section details when and how to alter your long-term plan.

D. Continually Adjust Your Plan

It is critical to realize that your long-term plan and its pacing are not set in stone. Rather, the plan is an organic document that will be revised and adjusted. You will need to alter your plan frequently throughout the year to respond to ongoing assessment data and to align it with your big goal and summative assessment.

Responding to ongoing assessment data

Your diagnostic assessment will give you valuable information about your students' current academic strengths and weaknesses. As you analyze the data from the diagnostic, you will learn what knowledge and skills your students currently have and what prerequisites they will need in order to master grade-level content. This incoming information will enable you to modify and enhance preexisting plans for remedial and enriched content that you developed in your long-term plan calendar. Adjusting your plan in response to this data is essential for leading students forward effectively.

For instance, if students are behind grade level, you will need to find ways to catch them up while maintaining progress toward the big goal. To do this, examine your long-term plan and carefully eliminate learning goals that students have firmly mastered and do not serve as important foundations to subsequent units. Next, identify places where you can integrate remedial learning goals and review for objectives that students need in order to learn grade-level content. It is difficult to balance the need for teaching prerequisite knowledge and skills while simultaneously leading students to master their grade-

level standards. To help manage this balance of integrating remedial goals into grade-level instruction, check out **Remediation Strategies** in the Toolkit (p. 35). ✕

Ultimately, you may discover that there are too many standards to realistically cover in one year while providing students with the foundational knowledge and skills they need to tackle grade level material. In this case, it may be necessary to prioritize some learning goals over “non-essential” goals that might be left for enrichment or eliminated altogether. Understand that prioritizing standards should be done **with great caution** and careful consideration. Any time you decide that one standard is more important than another, you risk depriving students of instruction on important grade-level material that other students will receive. For assistance, always seek the guidance of a veteran teacher with strong content knowledge. In addition, you can prioritize standards by determining if your state already highlights some goals as “essential” or “key,” and by closely examining which standards serve as important foundations for understanding content in future grade levels.

After creating an initial long-term plan, many teachers often fail to revisit their plans and make appropriate adjustments. In doing so, they often begin teaching grade-level material only to realize later that their students lack key prerequisite knowledge. This forces them to restart instruction at a different point, wasting valuable instructional time. To avoid this mistake, continually adjust your plans to respond to incoming data about your students’ readiness and mastery-level. Only by strategically recalibrating your long-term plan will you be able to both catch students up to speed and move them forward in mastering grade level material.

Too many new teachers believe that getting behind in their long-term plan means they should scrap the whole thing. On the contrary, if you get behind in the pacing that you set for yourself, you need to return to that document and reconfigure your plans so that you can still reach your ambitious goals for your students. Perhaps you can modify the remaining units, combining learning goals in order to shorten the unit length. Perhaps there are learning goals that you should prioritize over others. But do not throw your hands up and the plan out; instead revisit it and revise it appropriately. Remember, an effective long-term plan calendar should already have time built in to respond to inevitable, unexpected detours and the need for review or remediation.

Likewise, getting ahead in your pacing does not devalue your long-term plan. In this situation, you have a tremendous opportunity to further enrich students’ learning by digging more deeply into your grade-level standards or even pressing on to standards above your grade-level. Once again, return to your long-term plan. Modify units that can be expanded and add in others that can be included in the year.

Alignment with the big goal and summative assessment

In addition to responding to assessment data, you should also examine your long-term plan to ensure that it closely aligns with your big goal and end-of-the year assessment. Your plan, assessment, and big goal are only meaningful if they all work in concert toward a shared end. When they align, these tools are more likely to ensure high levels of instructional rigor and student mastery. Remember, when grouping learning goals into units (Step Two) and sequencing units over time (Step Three), you ensure that these actions lead students to achieve the big goal. These are the first steps toward ensuring that your long-term plan is aligned. However, it is still important to step back and double check – both at this point and throughout the year – whether the details of your long-term plan synch with your ultimate goal and measurement tools. To help do this, reflect on the following questions:

- Will this plan get your students to your big goal?
- How did you use your big goals and summative assessments to inform your long-term plan?

Long-Term Planning

- Given your big goal, which concepts hold a high priority, and does your long-term plan reflect this prioritization?
- How will your long-term plan help you think about remediation and extension to ensure mastery of the big goal?

Think critically as you answer these questions and tailor your long-term plan accordingly to maximize the cohesion among your instructional tools.

III. FAQ On Long-Term Planning

Now that you have a sense of the structure and purpose of the long-term plan, you may have several questions. While the long-term plan is an immensely helpful tool, it is also an inherently blunt instrument. Remember that the long-term plan takes a big-picture look at the year. The more subtle adjustments are made during unit and lesson-planning. Let's address some of those more subtle aspects here.

Q: *What is more important – ensuring that my students achieve the standards and learning goals on my long-term plan or ensuring that they do well on standardized tests?*

A: While many districts and states have aligned their tests and standards, some have not. The most important thing is that your students meet their grade-level or content-area standards. If they do, regardless of whether there is direct correlation between the standards and what is tested, it is very likely that your students will make significant progress on standardized tests. Still, there's more you can do to prepare your students for success on these tests. As you know, how your students do on these tests can determine whether they're promoted, whether they qualify for advanced tracks, and whether they qualify for special schools. Like it or not, standardized test scores make a real difference in students' lives. We suggest that you become as familiar as you can with the tests so that you'll know which of your standards are tested, how they are tested, and what your students need to know that is not included in the standards. Some districts and states do this for you, but in other areas you'll need to take the initiative to do it yourself. You might consider taking past samples of the test yourself, checking out the objectives for the test, and consulting with other teachers about what is on the test and how students are tested.

Q: *Couldn't we have students in our class who are below and others who are above grade level, and how will our long-term plan, which is based on grade-level standards, help us in that situation?*

A: You may discover that students in your classroom are at all different academic levels. Several of your students may be below grade level. A few may be far below grade level. This discovery may be overwhelming, but we hope it is also motivating. Catching your students up is exactly why you are here. You may also determine that some of your students are at grade level or even above grade level in various skills. That's great, and it means that you can push them to even higher levels of achievement. However, neither of these scenarios means that you have to throw out your long-term plan. Use the guidance in this chapter to tailor your long-term plan to meet the different levels and needs of students.

Q: *What should I do if my school's curriculum already has a plan that outlines what I will be teaching every day? This means I don't have to worry about long-term planning, right?*

A: ALL teachers, regardless of whether they receive a curriculum from their school, need to think critically about what their students need to learn, how best to create, group and sequence learning goals, and how to adjust their plans to meet the needs of their individual students (the

steps in the long-term planning process). If you blindly follow a scripted curriculum (or any pre-made instructional tool) without tailoring it to fit your class, you will likely lose focus on your purpose in reaching the big goal. If your school uses a scripted curriculum, closely analyze its structure to determine why it chose a particular learning goal sequence. Is there a logical progression among standards and units? Are some goals prerequisites for others, and if so, are they sequenced appropriately? Further, think about how the curriculum fits the needs of your class. Is there a place for teaching background knowledge and skills, sufficient review for challenging goals, and enrichment? It is your responsibility to ensure that the curriculum accounts for your students' different academic levels. Make the tool work for your class by adjusting and modifying it appropriately. Again, this reflection process is not limited to analyzing scripted curricula. You should take these steps to critically evaluate *any* tool you use during the year, whether it is pre-made or of your own design.

Q: ***What if my school's curriculum includes learning goals that are repeated in several different units throughout the year? How does this affect my long-term planning?***

A: Some curricula repeat or "spiral" learning goals throughout the year to help reinforce important knowledge and skills. A secondary science curriculum, for instance, may repeat the goal for students to apply the scientific method during several units. Everyday Math and Open Court Reading, on the other hand, are examples of spiraling curricula comprised entirely of ongoing learning goals. If your curriculum repeats learning goals in different units, you still need to check that these goals are grouped and sequenced logically throughout the year. Use the guidance in this chapter to evaluate the order of your curriculum's learning goals, ensuring that the sequence always leads students to master the big goal. You will also need to do this when ordering your objectives, a topic covered in the next chapter (on unit planning).

Q: ***Does the long-term planning process apply if I have students receiving special education services?***

A: Of course. Some would say even more so. We'll dive into greater detail about planning instruction for special education students in Chapter Eight. However, you should note that long-term plans for students with special needs may be more intricate than those described in this chapter but serve exactly the same purpose – to function as a plan and as documentation of the year's learning goals. (In fact, one might consider the Individual Education Programs (IEPs) required for students with special needs to be formalized long-term plans.) In some instances, you may need to utilize different standards for different students, or you may utilize standards for a variety of grade levels. As we'll discuss, there are structures and people to help you with these challenges.

Q: ***This all sounds really challenging.***

A: This *is* really challenging. And exciting.

Long-Term Planning

Conclusion and Key Concepts

A long-term plan is an absolutely essential tool for achieving significant academic gains for your students. Like a map, or a blueprint, it establishes where you are headed and how you are going to get there. The steps are relatively simple:

Step One: Use the standards to determine learning goals

- Standards are presented in a range of detail and specificity. Generally speaking, “standards” are relatively general statements of what students should learn, while “learning goals” are one level more specific. Digest your state standards and create learning goals if they are not already provided. This will help to develop your vision of what students need to master by the end of the year, a process you began in earlier chapters.

Step Two: Group learning goals into units

- Once you have the learning goals in front of you, you need to group them into smaller “units” based on some type of commonality. You should begin to think critically about how long it will take to teach the knowledge and skills from each unit.

Step Three: Logically order the units and plot them on the school calendar

- After grouping your units, use a similar thought-process to sequence these units and assign them to a period of time on the school calendar. Make sure to build in time for remedial and enrichment learning goals, as well as room for contingencies.

Step Four: Continually adjust your plan

- The final step of the long-term planning process is to consistently update your plan. Adjust the document to respond to ongoing assessment data about your students and to closely align it to meet the purpose of your big goal.

This process will do wonders for immediately improving your teaching and impacting your students’ achievement. Having a long-term plan will give you the perspective you need to make critical decisions about how you use your valuable time with your students.

Unit Planning

Chapter Four

- I. Develop Your Unit Vision
- II. Create Your Summative Unit Assessment
- III. Translate Your Learning Goals Into Lesson Objectives
- IV. Sequence Your Content and Scaffold Your Lesson Objectives
- V. Schedule Your Objectives On The School Calendar
- VI. Create Your Beginning-Of-Unit Diagnostic Tool
- VII. Create A Tracking System For Your Objectives
- VIII. Continually Adjust Your Plan

Introduction

A unit plan continues the mapping process that you began with your long-term plan. Just as your long-term plan sets out the goals and pacing for the whole year, your unit plan sets out your goals and pacing for the discrete slices of the year to which you have assigned your learning goals. In fact, one might think of a unit plan as almost the same thing as a long-term plan, but applied to a month or six weeks rather than the whole year. If the long-term plan is analogous to an entire hiking trail, the unit plan might be analogous to a particular leg of the journey. Check out the **Sample Unit Plan and Assessment** in the Toolkit (pp. 36-49). ✖

While it is imperative that you think through and create your long-term plan before or at the beginning of the school year, many teachers complete their unit plans as the previous unit comes to completion. Thus, you might have six to ten major “step-back” sessions during the year to reflect on the last four-to-six-week unit and plan out the next one. This would allow you to make adjustments for skills and concepts from the previous unit that need to be reinforced, as evidenced by the end-of-unit assessment. Other teachers find it helpful to flesh out their six to ten unit plans before the year begins, and then make adjustments and modifications as the year progresses.

Why Do We Need a Unit Plan?

In simple terms, a unit plan is simply a shorter-term, more detailed view of your teaching map than your long-term plan. Yet in many ways, it has a very similar purpose. Unit planning provides you with a sense of direction and organization that again helps you and the class to achieve significant academic gains within a particular time period. More specifically, creating a plan to reach short-term goals has the following benefits:

- **A unit plan forces you to make difficult decisions about what to teach and how to teach it.** After taking the time to develop a unit plan, you are less likely to be side-tracked by objectives, lessons, or activities that do not advance your ultimate quest for academic achievement. Tempting diversions will look much less appealing if you have your sights set on your students achieving a particular set of goals in a particular four-to-six-week period.
- **A unit plan keeps you on pace to reach your unit (and ultimately long-term) goals.** Your unit plan, which should be referred to with almost daily frequency, is your point of reference when you ask yourself, “Given where I want to be in two [or four or six] weeks, am I where I need to be now? Am I spending too much time on certain skills and concepts given the other skills and concepts that must be included in these X weeks, or X days?” Given the limited number of weeks, days,

Unit Planning

and lessons in a unit, each moment becomes more precious, forcing you to pace yourself appropriately in order to meet your end goals.

- **A unit plan provides an opportunity to stimulate student interest through overarching content that is relevant to students.** When you design your unit plan, consider what content will engage your students given their interests and backgrounds. As Jere Brophy indicates in *Tomorrow's Teachers*, "whether in textbooks or in teacher-led instruction, information is easier to learn to the extent that it is coherent (i.e., a sequence of ideas or events makes sense and the relationships among ideas are made apparent). Content is most likely to be organized coherently when it is selected in a principled way, guided by ideas about what students should learn from studying the topic."¹⁴ Your unit plan does precisely that—it creates discrete segments of learning that have a cohesive unity. And, you will help engage your students in learning because each unit will have an overarching idea that is relevant and interesting to students.

Creating Unit Plans

To create a unit plan that meets the above purposes and provides you with daily instructional guidance, many effective teachers use the following series of eight interdependent steps:

- (1) **Develop your unit vision**
- (2) **Create your summative unit assessment**
- (3) **Translate your learning goals into lesson objectives**
- (4) **Sequence your content and scaffold your lesson objectives**
- (5) **Schedule your objectives on the school calendar**
- (6) **Create your beginning-of-unit diagnostic tool**
- (7) **Create a tracking system for your objectives**
- (8) **Continually adjust your plan**

Note that these steps represent the same backwards-planning framework that we used at the assessment and long-term plan levels. They have been tried, tested, and used by many effective teachers and, thus, constitute a set of *guidelines* for reaching the purposes of unit planning. This process should not be thought of, however, as a "checklist" or as a series of discrete, linear steps to unit planning. As you will see throughout this chapter, many of the actions are interrelated and will need to be reused or revisited at multiple stages in the planning process. Avoid rigid adherence to each step. Such an approach may lead you to lose sight of your underlying purpose – clearly understanding your destination and developing a plan to reach this goal. Always reflect on the rationale for completing each stage in the process and think of the ways in which one action connects to and influences the other steps in the process. We will consider each step in turn, although you may recognize some steps (namely the creation of a beginning-of-unit diagnostic and an end-of-unit assessment) from Chapter Two.

¹⁴ Brophy, Jere. "Generic Aspects of Effective Teaching." *Tomorrow's Teachers*, ed. Margaret C. Wang and Herbert J. Walburg. Richmond, CA: McCutchen Publishing Corporation, 2001, p. 24.

I. Develop Your Unit Vision

You have probably heard teachers talk about teaching “units.” This generic term refers to what results when you transform various “buckets” of learning goals (created in your long-term plan) into a coherent set of lessons. For example, a high school English as a Second Language teacher might allocate six weeks to a “poetry unit,” in which a whole range of learning goals – from vocabulary to research skills – would be covered in the context of studying poetry. A middle school teacher might study a particular grouping of learning goals and realize that designing a museum in the classroom might be a great way to engage students in all of those learning goals. An elementary school teacher might notice that her class is just fascinated by firefighters and police, and she might decide to teach each of the learning goals she has grouped for the next six weeks through a unit on careers in the community.

Before you determine what type of unit to present, however, it is necessary to develop a strong **unit vision** – a clear understanding of your ultimate goal for student learning. At this stage in your planning process you need to answer the question, “What would it look like for my students to master the unit learning goals?” Without this clear vision of where you are going, you will be unable to effectively organize your instruction.

Up to this point you have developed a course-level understanding of your learning goals in creating your big goal and long-term plan. To develop your unit vision, continue this process of unpacking your learning goals using the resources described in Chapter One, including veteran teachers, exemplary student work, and grade-level assessments. Determine what exactly your students should know or be able to do by the end of the unit if they have achieved the learning goals. This will allow you to clearly envision the unit’s purpose and destination and prepare you to determine what evidence students must produce in order to demonstrate mastery.

You may already have a clear understanding of what student mastery will look like for your unit from your prior work in digesting your learning goals and standards. If so, you may not need to ‘unpack’ your learning goals any further to produce a sufficiently clear unit vision. Before you proceed, however, make sure that you can concretely describe in detail the most important things for your students to learn, and what it will look like for students to demonstrate that they have achieved the unit goals.

After developing your vision of the unit goal, you can begin to decide what type of unit you will use to present the learning goals to students. As the beginning of this section illustrates, there is a range of ways to think about creating “units” of learning. Units are often categorized as goals-based, thematic, or project-based.

A “**goals-based**” unit, in a way, is a misnomer because all units are rooted in goals. When we refer to goals-based units, we refer to a group of standards focused in the same content or skill area. For example, a middle school math teacher might plan a measurement unit to teach students the skills of measuring temperature, speed, volume, mass, and the dimensions of an object. An elementary teacher might create a unit on writing letters, focusing on the skills necessary to write friendly, informative, or persuasive letters. A secondary chemistry teacher might design a unit on the periodic table, teaching students the underlying concepts that govern the arrangement of the periodic table. With “goals-based” units, the teacher creates a unit directly from the content of the learning goals at issue. Consider the reflections of Margaret Cate, DC ’98:

I remember thinking that all my units had to be fancy – with bells and whistles and multiple connections to the content my students were studying in other classes. But my inquisitive 7th graders were often fascinated in the science learning goals themselves,

Unit Planning

and I could develop a unit – say, on human body systems – from those alone. Sure, I could still “spice it up” with a doctor from DC General as a guest speaker, MRI’s, X-Rays, and songs about the digestive system, but the focus each day was on objectives related to identifying, analyzing, and comparing the structure and function of human body systems.

Some people create their goals-based units by raising a central question that the learning goals imply – things like “what makes a story a real page-turner?” on narrative writing, or “who is a friend?” about foreign policy. Students then tie all of the content they learn during that unit to this enduring idea. With a lot of careful thought, you may even be able to develop questions or generalizations that recur throughout the year (“the parts of a system are interdependent” in science, for example), which can serve as touchstones for the various concepts, principles, and facts that your students learn. For a more detailed description about developing the “essential questions” of your curriculum, we highly recommend checking out Understanding By Design, accessible online to members at www.ascd.org (we also highly recommend becoming a member of the Association for Supervision and Curriculum Development (ASCD), otherwise your Program Director most likely will have a membership and can access this article for you).

Thematic units (probably most familiar to you from elementary school) also seek to reach goals, but integrate standards from multiple subject areas to do so, focusing on a common theme or topic. For example, elementary teachers might develop a thematic unit about dinosaurs to teach science, math, and writing skills. A teacher could have students measure model dinosaurs using centimeters and inches. They could address sentence structure learning goals by having students write sentences about dinosaurs, or science learning goals by having students identify which dinosaurs were carnivores, herbivores, or omnivores. Thematic units are particularly popular during events such as the Olympics and national elections.

Thematic units are also useful at the secondary level, and sometimes teachers of different content areas or disciplines choose to collaborate. For example, a high school history teacher might focus on the development and history of the city in which students live, while the biology teacher could lead students in an environmental study of a nearby river. Secondary teachers might also simply choose a particular field of student interest to use as a lens for studying different learning goals within their discipline, like examining the variety of physics principles through roller coaster rides or reaching various literature goals on character, plot, and setting while reading a series of books on tolerance. Notice how Miwa Powell, DC '96, centered a thematic unit on living things in her kindergarten classroom:

To meet our language arts objectives, we focused on stories from several different genres, from *Jack and the Beanstalk* to *Marti and the Mango* to Eric Carle’s *The Tiny Seed*. We based a variety of language arts activities on these stories, including identifying compound words, ordering events in a story, and using descriptive language. Many of our math objectives for this unit focused on measurement, estimation, and graphing. We created a variety of lessons around sorting, graphing, and estimating quantities of seeds. Our students helped each other measure themselves and created beautiful flowers that were exactly their height, which we used to decorate our classrooms. We also measured the stems and leaves of a variety of plants that we used for our science experiments. We built critical thinking skills through these experiments, which ranged from predicting the growth of lima bean seeds in different environments to observing a carnation draw colored water through its stem.

Project-based units focus on producing an end product, such as a book, a play, a trip, or a presentation that serves as a rallying point for the students and motivates them to learn. Students must learn skills in order to complete the project, and therefore they see the utility of skills as they apply their knowledge.

An elementary ESL teacher might design a project-based unit in which each student writes a page for a class book that they will have in the school library. A middle school English teacher might have students write and present a play of their own after reading various works by famous playwrights. A secondary Spanish teacher might plan a trip to a restaurant where students would be required to order and speak in Spanish for the whole meal. Perhaps in your unit on poetry, you are all working toward a “Poetry Slam” where students read and perform their work for an audience. Perhaps in your unit on the Constitutional Convention, you are working toward your own “Classroom Constitutional Convention” during which students will present their persuasive papers on various civic issues. Consider the reflections of Mina Kim, New Jersey ‘98:

I could tell that the concept of plotting points on a grid was lost on my Newark first graders, so I asked graduate students from Rutgers’ School of Planning and Public Policy to demonstrate how this skill could be translated into making maps. The graduate students brought various types of maps including an aerial photo of my students’ community, and my first graders enjoyed the activity so much that we launched a full-scale mapping project. Each child decorated a milk carton to look like their home, made cereal boxes into schools and stores, and formed construction paper into cars. They glued them to a floor-sized map they had painted complete with, yup, grid lines and coordinates. We used the grid to pinpoint the locations of everyone’s home, the school, parks and churches. Not only did they learn a great deal about maps, but they also exhibited tremendous pride in their community.

I was able to develop my Shakespeare units with a particular end goal – a very specific final paper assignment. For example, when I taught Othello, I knew ahead of time that I would offer three choices, all related to theme. This allowed me to basically plan my instruction to really focus on those themes, leaving students with a plethora of information and ideas by the time they got to the paper. When you’re dealing with a topic as huge as Shakespeare that has a million different possible angles, it is essential to boil it down to a few major things you wish to impart. A focused final project can help you wade through the static.

**Sarada Peri, Greater New Orleans ‘01
Graduate School, Public Policy
Harvard University**

Deciding the type of unit you will use to deliver your learning goals is the most central – and often wonderfully creative – step of unit planning. Sometimes, you will be able to choose a unit whose theme or end-project will excite and motivate you and your students (as in the examples of the dinosaur unit or the trip to a restaurant above). Other times, the learning goals will lend themselves to a particular type of unit. In this situation, you must determine how to best use and emphasize the particular content area to motivate students and bring them to mastery of the learning goals.

Consider the following groups of learning goals pulled from these teachers’ long-term plans

and the type of unit they decided to use to deliver those learning goals.

Example One: Goals-Based Unit

A nine-week unit for social studies (in which the standards indicate students should master key concepts surrounding the histories and cultures of Africa) for seventh grade students in Mississippi	Description of Unit (Goals-Based)
<p>The student will be able to:</p> <ul style="list-style-type: none"> Analyze various African cultures (religion, language, customs, contributions, etc.) Name and describe major events in the history of Africa Describe the essential characteristics of democracy, 	<p>Here, the learning goals themselves suggest the content. The students will research and create a timeline about the major events in African history. They will also chart comparisons among the nations and regions of Africa, comparing their populations, land areas, climate, topography, and languages.</p>

Unit Planning

<ul style="list-style-type: none"> theocracy, and socialism • Measure distances on a variety of maps • Analyze the physical characteristics of the continent • Assess the interactions of nations over time (e.g., political conflicts, commerce, transportation, immigration, etc.) 	<p>The culminating assessment will require students to choose one of the nations of Africa and analyze its history, culture, literature, and geography in a written report.</p>
--	---

Example Two: Thematic Unit

A six-week unit for high school physics in North Carolina	Description of Unit (Thematic)
<p>The student will be able to:</p> <ul style="list-style-type: none"> • Analyze energy of position, including gravitational potential energy and elastic potential energy • Analyze energy of motion (kinetic energy) • Analyze, evaluate, and apply the principle of conservation of mechanical energy • Analyze and measure the transfer of mechanical energy 	<p>The teacher is planning a six-week unit on cars. By studying the evolution and mechanics of cars, students will conduct a series of experiments to analyze various principles of potential and kinetic energy. They will calculate the potential and kinetic energy of model cars rolling down ramps, and the elastic potential energy of various springs in cars. As part of this unit, students will visit a tow truck company and calculate mechanical energy and transfer of energy through the tow truck's pulley system. Students will also visit a NASCAR track to discuss the implementation of all these principles on the race track.</p>

Example Three: Project-Based Unit

A three-week unit on writing skills for third grade students in Maryland	Description of Unit (Project-Based)
<p>The student will be able to:</p> <ul style="list-style-type: none"> • Group related ideas and maintain a consistent focus • Develop a topic sentence and supporting sentences • Use relevant descriptions, including sensory details, personal experiences, observations, and research-based information to make a topic or message clear to the reader • Write a friendly letter that addresses interests of reader 	<p>Through a pen-pal project with a corps member's class in Los Angeles, students will learn the skills of developing topic and supporting sentences, including sensory details and personal experiences in their writing, and revising their work on their own and with peers.</p>

Of course, these teachers could have picked any type of unit to present their learning goals. The unit on writing friendly letters could have been part of a thematic unit about a particular region of the country that incorporated science, math, and geography learning goals. The thematic physics unit could have been a project-based unit in which the students built a small course of ramps and inclines over which a ball could travel if energy is conserved appropriately. As noted in Chapter One, you should take advantage of the work that organizations have already done in grouping learning goals into compelling units. Browse the web sites listed in **Internet Links to Regional and National Standards** in the Toolkit for specific ideas (pp. 1-2). ✖

Your choice among these various unit structures is an opportunity to think critically about how to best engage your students. Select the approach that will most effectively invest them in their own learning.

Unit 1

Learning Goal A

Learning Goal D

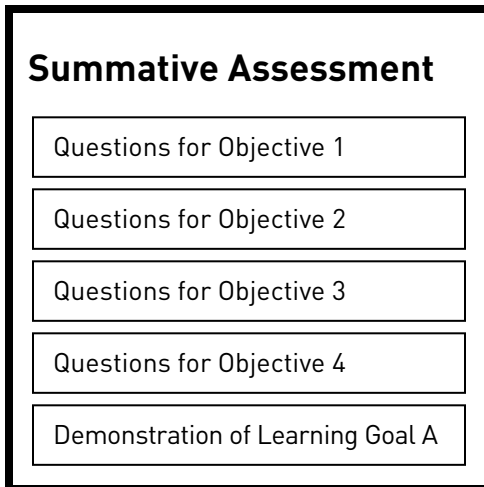
Learning Goal F

Learning Goal Z

Units are groups of Learning Goals (originally housed in different standards) that are unified by a common theme, project, or goal.

II. Create Your Summative Unit Assessment

Once you have determined your unit vision, providing you with a clear sense of what students must know and be able to do over the course of the unit, you need to consider how students will demonstrate mastery of these component skills and knowledge. What will count as acceptable evidence that your students have understood the unit's learning goals? How will you measure student mastery? Will there be a culminating project, writing assignment, or test?



A generic summative assessment, measuring achievement on a Learning Goal and its component parts

As explained in detail in Chapter Two, **successful teachers create their summative assessments *before* they begin teaching their lessons.** Doing so will greatly enhance your teaching and raise your students' achievement levels. Teachers who clearly articulate how students will demonstrate mastery upfront have a clearer sense of where their students need to end up. This enables them to both maintain focus on the unit goal and strategically prioritize their instructional plans to reach this goal. When teachers plan without an assessment in mind, they end up testing whatever they covered during the unit, whether or not this was sufficiently rigorous to meet their learning goals. This approach is more likely to result in insufficiently rigorous instruction that lowers the bar for student achievement. Planning for assessment first enables you to prioritize and demand high levels of rigor and mastery and reduces the likelihood of ultimately settling for less and/or eliminating important elements from your plan.

It is a good idea to develop summative assessments that formally measure mastery after a set of learning goals rather than after each objective. While you will be checking at every step to make sure students master individual objectives through formative assessments, it is inefficient to give a formal test for each of the hundreds of objectives you will teach during the year. Your assessment after each set of learning goals should end with a gauge of how well the student can perform each overall learning goal (for example, being able to write a paragraph with a topic sentence and supporting sentences), but should begin with individual questions for each objective (being able to identify the topic sentence in a paragraph, for one) to identify which of the learning goals' components students can and cannot accomplish along the way. Note that you haven't yet broken down your learning goals into objectives (this will occur in the next step of the unit planning process), so you aren't yet ready to create a complete assessment with detailed objective-level questions. At this stage you should identify and draft the types of general questions or prompts that are aligned to the overall learning goals of the unit. Once you create your objectives, you will be able to add the finer details to your unit assessment to align different components of the unit learning goals.

As outlined in Chapter Two, there are a number of different types of assessment questions and factors to consider when choosing an assessment. When creating your assessment, it is essential to select or design a tool that is best suited to solicit the evidence you need from students. For instance, both pencil-and-paper tests and authentic assessments can serve as reliable means of measuring achievement, depending on the learning goal. When appropriate, you may have students perform demonstrations, prepare dramatizations, create audio or video recordings, respond to journal prompts, build models, or solve novel problems, while maintaining a rubric outlining your expectations. The most important consideration is to choose an assessment type that will accurately and efficiently measure the learning

Unit Planning

goals they are intended to assess. For guidance on choosing assessment questions, reference **Considerations for Assessment Question Types** in the Toolkit (p. 14) ✖

It bears repeating that many decisions rest on the results of summative assessments, so it is vital that they are designed well. Be sure to refer back to Chapter Two and follow the guiding questions for creating a summative assessment to ensure that your assessments are **valid, reliable, and efficient**. Also, draw on **Guidance for Creating Valid Assessment Items** in the Toolkit (pp. 15-17) ✖, and use the Grading Supplement to help you determine the appropriate weight for each individual task.

As you plan your assessment (and throughout the steps of the unit planning process), continually think about where students will struggle to reach the level of mastery required by your assessment questions. To help uncover these possible areas of confusion, think about what you take for granted that may be confusing to students learning the content for the first time. Consider how and why students might have difficulty with a particular concept and consult with veteran teachers to determine common student misunderstandings. By proactively identifying these areas for potential confusion upfront, you will be able to address them in your instructional planning.

III. Translate Your Learning Goals Into Lesson Objectives

Let’s take a moment to review. In the last chapter, we examined broad standards established by every state. There are typically five to twelve standards in a given subject area. Within each of these standards, we saw a similar number of learning goals, equaling dozens and dozens all together. We found commonalities between these various learning goals and grouped them into “units,” which we sequenced on the calendar in a logical order. We then determined our vision for what students will be able to do at the end of the unit and began to create our end-of-unit summative assessment.

Once you have established your unit vision and assessment, you must look at your group of learning goals and translate each one into **student-achievement based, measurable, rigorous lesson objectives**. The need for this step may not be obvious to a new teacher, but it is critically important. The broad standards (and even the slightly more detailed “learning goals” that some districts may provide) simply do not provide you or your students enough concrete guidance and focus from which to design specific lessons. Thus, each learning goal must be translated into discrete, specific **lesson objectives** that can be taught in one lesson.

Often, an ineffective lesson results from not taking this relatively simple step of carefully defining your lesson objective. If you are careful to ensure that each lesson has a good objective, you dramatically increase your ability to ensure significant academic gains for your students.

Learning Objective A

Objective 1

Objective 2

Objective 3

Objective 4

Each learning goal is too broad to reach in one lesson; objectives are the basic unit of teaching.

Knowing this, how do you translate a general learning goal into a set of concrete lesson objectives that will actually help you design a day's lesson? We are going to spend the next couple of pages describing this process. You can start by asking these general guiding questions:

- What are the key nouns, adjectives, and verbs that describe your learning goals?
- What tasks and understandings are associated with the learning goals?
- What knowledge and skills will students need in order to master these goals?

The following are examples of learning goals translated into lesson objectives (each learning goal is just *one* of several from the example units above:

Goals-Based Africa History Unit

Learning Goal #4: • The student will measure distances on a variety of maps.

(translates into)

Lesson Objectives:

- The student will be able to use the map's index and grid to locate two geographical points.
- The student will be able to accurately measure the distance between two points in inches and centimeters.
- The student will be able to convert the distance on a map to the actual distance between two places using the map scale.
- The student will be able to calculate distances between two points on 1) a map of Africa and 2) a map of one African nation.

Thematic Car Unit

Learning Goal #1: • The student will analyze energy of position, including gravitational potential energy and elastic potential energy.

(translates into)

Lesson Objectives:

- The student will be able to explain the difference between gravitational potential energy and elastic potential energy.
- The student will be able to solve word problems involving gravitational and elastic potential energy.
- The student will be able to analyze the gravitational potential energy of real objects at different heights.
- The student will be able to analyze the elastic potential energy of real springs with different spring constants.

Project-Based Pen-Pal Unit

Learning Goal #2: • The student will develop a topic sentence and supporting sentences.

(translates into)

Lesson Objectives:

- The student will be able to identify the topic sentence and supporting sentences in a paragraph.
- The student will be able to describe the purpose of a topic sentence and supporting sentence.
- The student will be able to evaluate a topic sentence to ensure that it represents its paragraph's main idea.
- The student will be able to evaluate supporting sentences to ensure that they reinforce the paragraph's main idea.

Unit Planning

- The student will be able to write a paragraph with a topic sentence and supporting sentences.
-

To successfully translate general learning goals into more specific and useful lesson objectives you must ensure your lesson objectives meet three all-important criteria:

- (1) Lesson objectives must be STUDENT-ACHIEVEMENT BASED.
- (2) Lesson objectives must be MEASURABLE.
- (3) Lesson objectives must be RIGOROUS.

Creating Student-Achievement Based Lesson Objectives

When you write a lesson objective, ask yourself, “What are my students going to learn and achieve by the end of the lesson?” Some teachers fall into the trap of designing activities, creating worksheets, and giving lectures that merely “cover” material and do not focus on what *students* learn, achieve, and accomplish. When you translate a learning goal into a lesson objective, it should be **student-achievement based**.

The best way to draft objectives is to start with the phrase “The student will be able to...” (represented by the acronym “SWBAT”), and ensure that the objectives are derived from your course learning goals. If you look at your standards and learning goals (and most of the examples included in this text), you will most likely see that they are already student-achievement based. States and districts usually include the phrase “the student will...” or “the student will be able to...”

This approach to drafting objectives helps avoid some of the most common mistakes teachers make as they approach unit and lesson planning. Unfortunately, there are many classroom examples of non-student-achievement focused objectives. “Continuing to cover poetry,” or “Completing the worksheet,” or “Group work on African history,” are *not* useful objectives because they offer no indication of what learning you want the students to achieve. They offer no guidance or focus in the lesson planning process and do not help you to determine when you have succeeded with your lesson. In contrast, the objective “The student will be able to identify, describe the rhythm and rhyme structure for, and write a limerick” provides you with a specific, student-oriented focus for your lesson. By beginning every lesson objective with the phrase “The student will be able to...” you discipline yourself to ensure that you’re driving toward student achievement.

Keep in mind as we discuss lesson objectives that a teacher does not always teach one unique lesson objective per class per day. While it is a helpful habit to attempt to think of objectives in such discrete pieces, the reality is that sometimes it takes more or less than one class session to master an objective. You may have a set of objectives being addressed in one class period, or you may find yourself investing a few days of class time on one objective. Either way, be sure you identify exactly what your students need to accomplish by the end of each class period and how you will know whether they have, in fact, achieved this goal.

Creating Measurable Lesson Objectives

Objectives serve as the key tool for evaluating your own and your students’ success on a daily basis. If students achieve the lesson objective, the lesson is successful; if students do not achieve the objective, you must acknowledge that there is still material to be learned and most likely you must re-teach the objective in a different way. In order to determine confidently whether students have achieved the lesson objective, the objective must be **measurable**.

What makes an objective **measurable**? In a word, the verb. By carefully choosing a verb for your objective that lends itself to assessment, you will greatly enhance your lesson's efficacy.

For example, if an objective reads, "The student will be able to understand that bones help the body," how would the teacher *measure* that understanding? If an objective reads, "The student will learn about the phases of the moon," or "The student will enjoy food from different cultures," how would the teacher *measure* achievement of those objectives? The verbs *understand*, *learn*, and *enjoy* are relatively vague.

On the other hand, changing "the student will be able to *understand* that bones help the body," to "the student will be able to *list three ways* bones help the body," you have built into the objective a means of knowing when you have reached it. Instead of planning to help students *learn* about the phases of the moon, your objective could be for students to be able to *explain* the cause of the moon's phases and correctly *identify* the different phases by name.

Let's consider several lesson objectives and analyze them in light of the criteria we have outlined above.

Before Revision	Analysis of objective	After Revision
The student will understand the major parts of speech in a sentence.	This objective is not measurable. How will you know for certain whether students <i>understand</i> ?	The student will <u>be able to identify and define</u> the major parts of speech in a sentence.
The teacher will present a lesson on ordering fractions with different denominators.	This objective is not student-achievement based.	<u>The student will be able to order</u> fractions with different denominators.
The student will enjoy the rhyming schemes in different types of poetry.	This objective is not measurable. How do you measure student enjoyment?	The student will <u>be able to compare and contrast</u> the rhyming schemes in different types of poetry.
The teacher will discuss the implications of cloning human beings.	This objective is not student-achievement based.	<u>The student will be able to evaluate</u> the implications of cloning human beings.
The student will learn the conditions in Europe that led to World War II.	This objective is not measurable.	The student will <u>be able to explain</u> the conditions in Europe that led to World War II.
The student will be able to list the phases of the water cycle.	This objective is student-achievement based and measurable.	No revisions necessary.
The student will be able to write a short biography of a famous individual based on research from multiple sources.	This objective is student-achievement based and measurable.	No revisions necessary. <i>(This objective encompasses several lesson objectives, and might come at the end of a unit, perhaps as the end-of-unit assessment.)</i>

When I was a corps member, my program director asked me one simple question after observing my lesson. "How will you know you achieved your objective?" This question revolutionized how I thought of each lesson. I realized concretely how important it is to have a tangible way of knowing I accomplished my goal for the day. Additionally, I was able to think about how every single thing I did and said in my lesson was for the purpose of driving my students to achieve the objective for the day.

Heather Tow-Yick, New York '98
Graduate Student, Business
Columbia University

Creating Rigorous Lesson Objectives

For objectives to be rigorous they must connect to the big goal and be written at the appropriate cognitive level.

Unit Planning

Connected to the Big Goal

As you plan your objectives, you should always be thinking, “Why is this knowledge or skill important to the larger goal?” This step requires you to clearly articulate a lesson objective’s purpose in terms of how it connects to the overall big goal. Rigorous objectives should clearly relate to your unit and course goals and serve as necessary steps towards achieving those ends. Objectives that don’t have necessary, logical connections to your big goals are ineffective because they will not ultimately move your students forward in their path toward academic achievement. Tying objectives to the big goal not only provides clarity of purpose, but can also help focus and motivate students. If you ensure that students understand this connection, it will remind them of the bigger instructional picture and provide them with a concrete rationale for why they are learning this particular objective. This will help in continually reinforcing the meaning and significance behind classroom activities.

At the appropriate cognitive level

As seen above, measurable, student-achievement based objectives contain a carefully chosen *verb* (such as write, list, measure, evaluate, calculate, and categorize) that helps drive the objective’s focus. A teacher should be aware that the choice of verb also affects the cognitive level of the objective. That is, particular verbs address a lower level of thinking, and others address a higher level of thinking. For help in this area, see the worksheet based on **Designing Lesson Objectives that Address the Appropriate Cognitive Level** in the Toolkit (pp. 50-51). ✖

Your course on *Learning Theory* outlines how student learning can occur at a whole range of complexity, from rote memorization to sophisticated evaluation of difficult concepts. Bloom’s Taxonomy, developed by Dr. Benjamin Bloom of the University of Chicago, is the most commonly used hierarchy of cognitive levels. Where your lesson objectives fall on that range of complexity should be a conscious choice on your part, depending on the rigor of the learning goals you are trying to reach.

Bloom’s Taxonomy

	Cognitive Level	Action Verbs	Concrete Tasks
Lower Level	Knowledge	List, match, tell, label, name, locate, memorize, repeat	Recall or recognize information, usually in the same way it was learned
	Comprehension	Describe, explain, summarize, restate, identify, translate	Translate or interpret prior learning
Higher Level	Application	Solve, classify, demonstrate, dramatize, manipulate	Independently apply the knowledge or skills learned
	Analysis	Debate, compare, differentiate, separate, group, research	Separate, examine, and draw conclusions from information
	Synthesis	Create, produce, reconstruct, arrange, pretend, assemble, organize, blend, generate	Combine information and apply it to a new situation in order to solve a problem
	Evaluation	Assess, justify, rate, revise, defend, support, prioritize	Make qualitative and quantitative assessments using specific criteria

When choosing a verb at the appropriate cognitive level to include in your objective, remember to consider the following three factors:

- **The age/developmental level of your students.** As the *Learning Theory* course explains in much more detail, younger students often are still building their lower-level thinking skills and are more successful when considering concrete concepts. Of course, teachers should push young students to higher cognitive levels when they have the appropriate foundation and should always depend on a

varied blend of different cognitive levels. Older students usually are able to operate at a higher level of thinking and can reason abstractly, so you can push them to application, analysis, synthesis, and evaluation. Remember, to help determine the level you should expect your students to reach, you can also revisit your big goal and consult the expectations at high performing schools for students in your subject and grade level.

- **The cognitive level of the learning goals.** As you break down your learning goals into lesson objectives, be sure that the highest cognitive level of those objectives is at least as high on Bloom's as the original learning goal. If the learning goal expects students to reach the level of synthesis, for instance, and you only ask students to describe or explain the topic (the "comprehension" level on Bloom's), then your objectives would be insufficiently rigorous to lead students to master that learning goal. At least one objective should reach the cognitive level of your learning goal in order for your objectives to be at the appropriate level of rigor.
- **The academic starting point of your students:** Where are your students in relation to the cognitive level of the objective? Before you can reach high levels of Bloom's Taxonomy, you must help your students with the lower rungs. If you want your class to be able to compare and contrast different types of rocks (analysis), be sure they can first name the three types (knowledge), describe the characteristics of each in their own words (comprehension) and classify unlabeled rocks as members of one of the three groups (application). Along the same lines, students obviously can't analyze the use of adjectives in a passage if they do not know what an adjective is. And conversely, you shouldn't teach students how to find the Fahrenheit and Celsius sides of the thermometer if they already know how to read and write both types of temperatures. **It is therefore important to consider your students' current achievement levels and all of the pre-requisite skills and knowledge that your goals assume when fashioning your list of lesson objectives.** Your objectives will be inappropriately rigorous if they are too ambitious (i.e. students are not prepared to perform up to the objective's level) or are not ambitious enough (i.e. students have already mastered the objective). Finding the right balance is the key for providing students the appropriate level of challenge, rather than frustrating or boring them with objectives that are not of the appropriate rigor.

As this suggests, if your students already demonstrate a certain level of proficiency, keep moving them up the taxonomy. Can students already solve problems with fractions (application)? If so, you should guide them to compare fractions with different denominators to determine which is greater (analysis). Can students already reconstruct the plot of a fairy tale so that it is set in the present day (synthesis)? If so, you should ask them to judge whether the main character was justified in her actions, and defend their opinions (evaluation).

For nearly fifty years, Bloom's Taxonomy has remained the foremost classification system of cognitive levels, despite the development of alternative models since its creation. Moreover, most new research in this field has actually served to authenticate Bloom's approach. While there is some disagreement among learning theorists as to whether the order of "synthesis" and "evaluation" should be switched (based on the premise that evaluation may be easier to accomplish than synthesis), this debate reinforces the belief that the taxonomy is not to be used as an exact hierarchy. Meaning, you do not necessarily need to ask your students to perform synthesis assignments before attempting evaluation. Perhaps one contributing factor to the taxonomy's continued popularity over the years is its undeniable value to teachers. Bloom's reminds us that students need to master basic, factual knowledge before moving to more advanced cognitive demands, all while encouraging teachers to maintain high expectations and push students to these higher levels of achievement. Bloom's is applicable to all grade-levels and content areas and provides invaluable assistance in writing objectives at the appropriate cognitive 'rung' to lead students to their academic goals.

Unit Planning

(As mentioned in the previous chapter, we also must remember that the development of lesson objectives may be somewhat different if you are teaching a class of fourth AND fifth graders, or a class of students with special needs and students for whom you are working toward several different sets of standards. You would still be responsible for drafting rigorous, measurable, student-achievement focused objectives, but you might find that you have different objectives for different students in the class. See Chapter Eight for more on “differentiated” classrooms.)

Before you move to the next step in the unit planning process, take this time to revisit the unit assessment you began to create in step two. Remember that so far you have only drafted the overarching framework of your assessment (general, standards-aligned prompts, tasks, and/or questions) and have yet to fill in all of the details. Now that you have a clear idea of what objectives you will teach students, you can add more assessment questions that address and align to the objective-level components of your unit goal. Adding these details will be important for completing your assessment and clarifying your understanding of what evidence you will need to see from students in order to determine their level of mastery.

IV. Sequence Your Content And Scaffold Your Lesson Objectives

The fourth step of unit planning, after you have (1) developed your unit vision, (2) created your summative unit assessment, and (3) developed rigorous, measurable, student-achievement based lesson objectives for that unit, is to (4) think critically about the order in which to teach those objectives within the unit. An effective sequence is comprised of a series of scaffolded objectives that leads to the achievement of the big goal and builds on and extends student understanding, beginning with simpler, more concrete, lower-level concepts and progressing to more complex, abstract, higher-level ideas.

Keys to Effective Sequencing and Scaffolding

In sequencing the content of your unit, use the same rationale and considerations as when ordering your units during the long-term planning process (see Chapter Three). Again, you should determine how to present your unit so that topics build on one another logically and conceptually, all the while leading students to achieve their academic goals. Place prerequisite learning goals and objectives earlier in the unit to set students up for success and to prevent student misunderstandings. Also, always remember to constantly reflect on the significance and purpose of your objectives. Eliminate any particular objective, or series of objectives, that is not a necessary step toward reaching the big goal.

In order to ensure that your objectives are scaffolded – starting with lower-level and moving to higher-level thinking skills and concepts – it is helpful to review each objective through the hierarchy of Bloom’s Taxonomy. Consider the following sequence for a unit on cells in a seventh grade life science class.

Unit Goal: Understand the functions of different parts of a cell and how they contribute to cell operation	
Objective: The student will be able to label 10 major organelles in plant and animal cells.	Cognitive Level: Knowledge (lowest level)
The student will be able to explain the function of ten major organelles in plant and animal cells.	Comprehension
The student will be able to create a model of the cell.	Application
The student will be able to compare the cell to a factory, and specify which organelle parallels each component of the factory.	Analysis
The student will be able to demonstrate how multiple cells combine in form and function to create tissues.	Synthesis
The student will be able to predict how a cell’s operation would change if certain parts were removed.	Evaluation (highest level)

Notice how the objectives build on each other logically and will lead students to achieve the overarching goal. If students can't explain the function of various organelles, they are certainly not going to be able to compare those organelles to the parts of a factory. The above sequence also builds on concrete, lower-level thinking skills (such as labeling the organelles in a cell) and then moves to more abstract ideas (such as predicting how a cell's operation would change if certain parts of it were removed). Ordering the

objectives in this way also gives the students a sense of momentum and builds students' confidence, as previous learning experiences serve as a foundation for the extension of student knowledge and the achievement of the big goal.

When I teach my second graders double digit addition and subtraction with regrouping, I make sure I begin the unit at a point in the year where they have a strong foundation in identifying place value. Then we spend several days just working on the concept of trading ones and tens (using base-ten manipulatives and dimes and pennies). After that, we work on building the connection between the concept and the written algorithm by drawing pictures and writing number sentences to match place value illustrations. Finally, they are ready for the algorithm alone.

Regan Kelly, Los Angeles '99
Literacy Coach
Los Angeles Unified School District

At times, sequencing objectives will be a fairly straightforward process, as in the example above. There, the cognitive level of the lesson objectives themselves facilitated the sequencing process. At other times, however, you may have several lesson objectives at the same cognitive level, and you need to consider other factors to determine the appropriate sequence. Let's consider the discrete lesson objectives drawn from the learning goal, "The student will be able to estimate and measure length, height and perimeter using cm, m, in, and feet."

- The student will be able to measure the length and height of an object using inches.
- The student will be able to measure the length and height of an object using feet.
- The student will be able to measure the length and height of an object using centimeters.
- The student will be able to measure the length and height of an object using meters.
- The student will be able to measure the perimeter of an object using centimeters, meters, inches, and feet.
- The student will be able to estimate the length, height, and perimeter of an object using centimeters, meters, inches, and feet.

Why is this an effective sequence? The objectives involving measurement (application) should be taught before objectives that require estimation (analysis) in order to build from concrete concepts to more abstract ideas. But now we have several objectives at the cognitive level of application. How do we create a sequence among those objectives that drives towards a clear goal, gives students a sense of where the unit is going, and reinforces previous objectives to build on and extend student understanding?

In this situation, effective sequencing requires a deeper understanding of how learners process new information, and there may be disagreement among experienced teachers about the most effective order. The objective that involves measuring the perimeter of an object should go towards the end, as that involves both teaching the concept of perimeter and the application of all of the previously learned forms of measurement. We are left with determining the order of measurement objectives that involve use of centimeters, inches, feet, and meters. Some could argue for keeping the systems of measurement separate (i.e., teaching use of inches and feet and then teaching use of the metric system). Other teachers might feel that students should work on the same scale and then increase the size of the objects they measure (i.e., teaching inches and centimeters and then teaching feet and meters). There are reasons to use either sequence. What is most important is that you constantly reflect on the

Unit Planning

effectiveness of the sequence you have chosen, and seek guidance from other sources such as veteran teachers.

V. Schedule Your Objectives On The School Calendar

Once you have sequenced and scaffolded your content, you are ready to schedule instruction for the unit. Use a school calendar to plot the lesson objectives just as you plotted your units during the third step of the long-term planning process (see Chapter Three).

As with your long-term plan calendar, plot your lesson objectives recognizing the events that won't allow for regular instruction, such as school breaks, field trips, days devoted to standardized testing, and district professional development. If possible, collaborate with other teachers at your school when creating your calendar. Knowing when other teachers plan on administering major assessments may impact the schedule of your unit assessments (students won't be too happy, or effective, if they are taking several major test in the same week). Further, collaborating will allow you to understand the trajectory and demands of other teachers' classes. This may illuminate potential areas for cross-curricular connections, overlapping instruction, and other intriguing possibilities for leveraging instruction to the benefit of students in all disciplines. Consider these possibilities as you calendar your units as well. After all is said and done, you need to ensure that your lesson objective schedule fits into the time you originally allocated to the unit in the long-term planning process.

You can make a rough estimate of this schedule before you administer the diagnostic, but you will have a better sense of exactly how many days the unit will require once you determine what your students know and don't yet know. (As mentioned before, objectives should be relatively discrete building blocks of learning, lasting roughly one class period long. If you find yourself thinking you are going to need two weeks to meet one objective, it *may* be that you should think about breaking that objective into its component parts. At the same time, remember that you can address more than one objective in a single period if your students demonstrate mastery of particular goals quickly.)

Again, make sure that your unit plan has built in time for contingencies, enrichment, and remediation. When calendaring consider how you are going to teach skills that are prerequisite to that day's objective, and determine how you will circle back and reinforce or review objectives that you have already taught. On the flip side, determine how and when you should extend and enrich student understanding beyond your objectives, in addition to budgeting time for unexpected delays in your instruction.

Similar to the long-term plan, the unit plan will be revisited and adjusted over the course of the unit. Getting ahead or behind in your unit plan does not undermine the value of the plan. Return to the plan and look for ways to adjust it slightly, either by combining or eliminating non-essential objectives or by

A Note on Scripted Curricula

Even if your school requires you to use a "scripted curriculum" that lays out what to teach and when to teach it, it is still important to understand the purpose and process of unit planning. Don't believe that you can simply use your curriculum to lead students to achievement without understanding and adjusting it first. As mentioned in the FAQ on long-term planning, you always need to critically evaluate pre-made tools and determine how to tailor them to fit your students' needs.

If you use a scripted curriculum in the fall, invest time in digesting the vision of your units. Evaluate the quality of the objectives and their sequencing. Think about the time allotted for different learning goals and determine where you can integrate remediation and enrichment. Making appropriate adjustments to your curriculum will ensure that it is more effectively serving your students.

extending the skills and concepts of the objective to enrich student understanding. Making these adjustments will be detailed further in Step Eight on tailoring your plan based on diagnostic data, the final step in creating your unit plan.

Checking for Alignment

At this point, you should reflect on your newly created unit plan to examine its alignment to the rest of your instructional tools. As you recall, you have already checked several issues of alignment at different points in the unit planning process. It will be important, though, to take extra time at this stage to review the different components of your unit plan and assessment and ensure that they are working in harmony – both with each other and with your big goal and long-term plan. To help check for alignment within and between your instructional tools, begin asking the following questions:

- Do the assessment items test the right knowledge and skills, ask for the appropriate products, and represent the appropriate level of Bloom's given your unit plan's objectives?
- Is the unit plan structured in a way that would logically lead students to perform well on the assessment and master the learning goals?
- Does the learning from this unit flow logically from that of the previous unit?
- Will achievement on the assessment translate to achievement of the unit goal, and will this set your students up for success in the next unit?
- Is the achievement of the unit goal directly connected to and a necessary step toward achieving the big goal for the year?

If any of your answers reveal an area of misalignment, congratulations! You will now be able to proactively correct this important issue before it affects your students' learning later on. While we are highlighting the need to check for alignment at this point, remember that you should consistently prioritize this step throughout your planning.

VI. Create Your Beginning-Of-Unit Diagnostic Tool

Just as important as knowing when your students will have reached your unit goals is identifying where your students are starting. You need to know whether your students have the prerequisite knowledge they need to be ready to learn grade-level content and what knowledge of unit objectives students already have. Reliable data here will greatly influence where you begin your instruction toward your unit goals. Without this starting point, even the strongest unit plans will not effectively lead students to reach their destination.

You will need to design a beginning-of-unit diagnostic after creating the main unit plan with objectives sequenced onto a calendar. This will provide you with a sense of where your class in general – and your students individually – are currently performing.

Unit Planning

Remember, developing such diagnostics:

- **Allows you to know where to begin your instruction.** As described in Chapter Two, different types of diagnostic questions provide you information on where the class is in relation to your unit's learning goals. Including diagnostic questions that assess "readiness," for instance, will reveal which students lack the prerequisite skills to begin the unit, and including "pre-test" questions will reveal which students have already mastered some of the skills you plan to teach. Discovering that your students are in different places – a common classroom reality – will prompt you to make modifications to your unit and long-term plans (see Step Eight below). Additionally, we will discuss differentiating instruction in greater detail in Chapter Eight. Generally speaking, it is important to tailor instruction to reach students where they are currently performing; if you do not, students will become disengaged, discouraged, or frustrated. Further, you will have to spend more time re-teaching content than if you had identified which objectives needed reviewing at this stage in the planning process.
- **Provides a starting point – or benchmark – against which you can measure growth.** Marking the starting point of each student is an essential step of measuring student achievement. Without knowing where each student began, you will not be able to measure his or her academic growth. While the end-of-unit assessment will reveal whether or not students have met the end goals, you will also want to determine the growth that your students are making from their various starting places so that you're sure you're pushing everyone – both higher and lower performers – forward dramatically. *Once you administer the diagnostic, don't forget to grade and record these initial results on the progress-tracking charts you will make in the next step of the unit planning process.*

When I gave a unit pre-test and analyzed the results, I saw that everyone already had capitalization down pat. I'm so glad I learned I could concentrate my efforts on planning lessons for other skills.

Andrew Mandel, RGV '00
Vice President, Interactive Learning & Engagement
Teach For America

Chapter Two details the ways to create valid, reliable, and efficient assessments. Take this time to review the guidance provided there, remembering that it will be important to ensure that your assessment is scaffolded with questions progressing from lower to higher levels of cognitive demands on Bloom's taxonomy. This will allow you to pinpoint what exactly students know and at what point their understanding breaks down.

Chapter Two also includes an outline of different questions to consider when selecting the appropriate diagnostic assessment. Remember to think strategically about what information you want your diagnostic to provide and why, and how this information will be important to your instructional decision making. Specifically, determine what you need to know about students' readiness, prior knowledge, and interests regarding the content of your unit. You will then be ready to design (or select) a tool that fits your needs. Note that your diagnostic can be relatively quick and informal, if necessary. Simply recording what students already believe they know and want to learn about a topic, for instance, can provide you with valuable insights about your class prior knowledge and current level of understanding. At times, however, it may be more appropriate to administer a formal assessment that measures prerequisite skills and/or student proficiency on upcoming unit learning goals. Regardless of what type of diagnostic you use, it is vital to ensure that it is best suited to elicit the information you need to begin instruction.

As noted above, there will be give and take between your unit plan and your diagnostic. In order to plan a unit, you need to know where your students currently perform. But to determine where your students currently perform, you need to know what skills you plan to teach them so that you can determine their mastery of those skills. Many successful teachers deal with this conundrum by basing diagnostics on initial estimates of where their students might be, and adjusting plans after the results come in.

VII. Create A Tracking System for Your Objectives

At this point, you have created your unit plan and your diagnostic and summative assessments. You are now ready to take a giant step forward in your long-term ability to make academic gains with your students; you can now create the beginnings of your progress tracking system.

What is a tracking system? At its core, a tracking system is a chart that records students' and class' progress on the objectives you are teaching. If the teacher is like a guide leading a group of hikers to the summit of the mountain, tracking student academic progress is akin to having a Global Positioning System for each student in the class. As a student improves his or her skills in a particular area, the classroom tracking system records that growth. If Javier can now read second-grade books at 100 words per minute whereas his fluency was 90 wpm a month ago, the tracking system would chart that progress. If Sarah has demonstrated mastery of the key concepts of the Revolutionary War but has not yet shown sufficient knowledge of the French and Indian War, the tracking system would show that, too. Similarly, a quality tracking system will show the overall picture of your class' average mastery and progress toward the big goal. This allows you to clearly know where your class and students currently perform, as well as

Mr. Johnston's Progress Chart Unit One: <i>Reading and Writing Multi-Digit Numbers</i>								
Student Name	Read 2-Digit Numbers	Read 3-Digit Numbers	Read 4-Digit Numbers	Read 5-Digit Numbers	Read 6-Digit Numbers	Read 7-Digit Numbers	Represent a 2-Digit Number with Manipulatives	Write a 2-Digit Number in Expanded Form
Class Average								
Diana								
Sylvia								
Pasquale								
Leticia								

Your tracking system can be a simple chart with students' names on one axis and the objectives you're teaching on the other (see above). In some classrooms, students also have their own progress-tracking forms.

how far you need to travel in order to reach your goals. With this knowledge you will be able to make informed, data-driven adjustments to your instruction. While all of the planning actions described thus far are important for leading students to significant academic progress, none of them will be effective unless you consistently track student performance in a clear, organized tracking system.

A simplistic view of tracking would be to describe it as one form of grading – and yet they are actually distinct processes. Most often, grading is the numerical average of a series of summative assessment scores. Tracking begins with a list of objectives that a student needs to master, and the tracking system indicates the extent to which the student and the whole class have mastered those objectives over time.

Unit Planning

What does this system look like? It depends. Some teachers create a separate tracking document for each student. For example, you might maintain a detailed checklist just for Tatiana, showing whether she is emergent, developing, or secure in her mastery of each of the specific writing skills expected of a first grader. Other systems break down a particular standard into its component objectives, with a place to record each student's progress (see the Progress Chart, on the previous page). In this case, you might keep a chart with columns for each discrete skill (e.g., reading two-digit numbers, representing a two-digit number with manipulatives) and a row for each student. You can make these charts in a spreadsheet, in your gradebook, in your students' folders – whatever makes most sense for you. Just make sure that your system allows you to easily and efficiently record and analyze your data.

My students and I “climb the hill” to make their individual objectives the focal point of assessment and instruction. Each student has a paper hill in the classroom with pictures of themselves attached to the slope and the objective tacked at the top. As they meet the small objectives I have created on the way to the big goal, they literally move themselves up the hill of understanding. This keeps them focused and inspires them to be motivated as learners.

Anne LaTarte, New York City '03
Managing Director, Program
Teach For America

Once you have created your tracking system, you can easily and efficiently record student performance for each objective you assess. This is exactly what Rebecca Cohen, Baltimore '00, does in her seventh grade English classroom. After determining the objectives she will teach, she ensures that her benchmark tests contain questions measuring each of these objectives. Then, “when I get benchmark tests back and return them to my students, I say, “Put a smiley face next to numbers 1, 5, 9, and 15. If you got all those correct, you mastered objective 16c. Highlight that on your own objectives sheet!”

Rob LoPiccolo, South Louisiana '99, says a progress tracking system has changed the instruction in his ninth grade physical science classroom:

Looking at the range of *scores* from the final test on Newton's Laws didn't tell me what specific objectives I had taught well and which ones I needed to re-teach. Fast forward to today: if you point to one of my objectives for the year, such as “*you will be able to interpret acceleration from distance vs. time graphs,*” I can tell you exactly how many students have demonstrated mastery of that objective. When students receive their assessment results back, they see that their overall grade, but more importantly they see what specific objectives they have demonstrated mastery of. They then can check off the objective on their own tracking sheet.

At this point, you also should place the learning goals and objectives being tested by your summative and diagnostic assessments into your tracking sheet. Once you have administered and graded your assessments, you will be prepared to immediately record this data and analyze it for important instructional implications. By doing so, you will know which students need assistance with which skills – and potentially which groups you can create for remediation or enrichment in a particular area of objectives. Your students will know what they've mastered – and see where they're making progress. You can also give parents specific instructions about which skills they can reinforce at home. Both Chapter Eight on Differentiation and the Grading Supplement found at the end of this course contain more about the benefits of tracking progress and how to integrate such a system in your classroom. Determining and responding to the implications of your assessment results is an extremely important part of effectively adjusting your plans to meet the needs of your students. This is the next and final step of the unit planning process.

VIII. Continually Adjust Your Plan

After you finish administering and tracking the data, it will be important to reflect on your overall plan and make appropriate adjustments in light of this new information. This step should be familiar because it parallels the same process outlined in Chapter Three on long-term planning. To effectively adjust your unit plan, first interpret your diagnostic (or other assessment) data and then decide how to appropriately respond to this data.

Interpreting Data

Once you have collected your diagnostic data in your tracking sheet, determine what this data reveals about the relative strengths and weaknesses of your class, as well as students' readiness to learn the grade-level objectives of the course. If your students demonstrate mastery of a series of prerequisite skills, for instance, this probably means that you will not need to spend much time covering these topics later on. On the other hand, the more your students struggle with certain learning goals, the more time you will need to spend reviewing or re-teaching this material during the year. Knowing this data will allow you to make informed instructional decisions about how to adjust your plans to move students forward.

Responding to Data

Once you have interpreted your data, you are ready to take action and adjust your plans accordingly. If you used a diagnostic that assessed student readiness, you will have to decide how to address the prerequisite skills students need while keeping pace to reach your larger goals. Find logical places to incorporate remediation or review into your unit plan, and adjust your instructional sequence to include these prerequisite objectives. If your students have a lot of remedial needs, you may feel tempted to only focus on prerequisite content without moving students forward on grade-level material. Doing so, however, will not effectively lead your students to make the academic progress they need to catch up to their peers. You can avoid this trap through a number of strategies. Finding additional instructional time during the day or before and after school, for instance, is a great way to fit in review while maintaining your unit plan pacing. For more guidance, return to the Toolkit resource **Remediation Strategies** (p. 35) first introduced in Chapter Three.

If you receive data on student mastery of unit objectives, decide which objectives you will need to review, re-teach, or possibly eliminate from your unit sequence. As discussed in Chapter Three on long-term planning, tread carefully when deciding to skip objectives, and take care not to eliminate objectives that serve as important prerequisites to content later in your unit sequence. Lastly, think of how you will differentiate instruction for students who have yet to master content that most of the class already understands, and for students who have mastered objectives that most of the class has not. Tailoring your unit plan to meet the needs of individual students based on assessment data will enhance your instructional ability to lead students to the achievement of the unit goal.

Remember that you should perform this cycle of adjusting your plan based on interpreting and responding to data consistently throughout the year, not just at the beginning of the unit. Your diagnostic data will be supplemented by further assessments, student work, and your own observations about students' strengths and weaknesses. You need to be prepared to rethink initial conclusions, and corresponding adjustments, based on incoming data during the year. This will ensure that your instructional tools remain fine-tuned and calibrated to effectively serve the needs of your students.

At this point, you should also re-check the alignment of your tools, just as you did after scheduling your objectives (at the end of step five). Each adjustment you make to your unit plan has consequences for

Unit Planning

other instructional tools. For instance, if you eliminate an objective after analyzing your diagnostic data, it will be important to remove this from your summative unit assessment and to adjust your unit calendar accordingly. Take time to carefully determine if your adjustments affect the overall alignment of your unit plan with the unit assessment, big goal, etc.

Conclusion and Key Concepts

In Chapter Three, we took the highest-flying look at your year as we examined the long-term plan. In this chapter, we have taken a somewhat more detailed perspective, focusing on unit planning.

- Like a long-term plan, but on a smaller scale, a unit plan provides you with a sense of direction and organization. A unit plan keeps you on pace to reach your unit (and ultimately your long-term) goals. A unit plan also provides an opportunity to stimulate student interest through overarching content that is relevant to students.
- The unit planning process involves eight steps:

(1) Develop your unit vision

Unpack your standards to clearly understand what evidence you will need to see from students in order to know whether they have achieved the unit goal. Then decide among the types of units you might design: goals-based units (which revolve around the learning goals themselves for one content area), thematic units (which use a common theme to draw in various learning goals from different areas), and project-based units (which focus on an end-product, some creation or event that will serve as the vehicle for students' mastery of the learning goals).

(2) Create your summative unit assessment

Successful teachers create their end-of-unit assessment tool before they begin teaching the unit. Begin to purposefully choose tasks that will allow students to demonstrate their mastery of the unit goal. This will serve as an initial framework for your assessment that will later feature questions that test each individual objective. After creating your assessment begin to anticipate potential student misunderstandings of your unit content.

(3) Translate your learning goals into lesson objectives

You must translate your general learning goals into more specific lesson objectives. These objectives should be student-achievement based, measurable, and rigorous. Consider all of the prerequisite knowledge and skills that a child may need to perform the goals you outline.

(4) Sequence your content and scaffold your lesson objectives

The fourth step is to think critically about how you will order your content and scaffold those objectives over the course of your unit. You need to consider what order will result in the most effective sequencing of the objectives, based on Bloom's Taxonomy and level of rigor.

(5) Schedule your objectives on the school calendar

Use a school calendar to plot the lesson objectives, ensuring that you have allotted enough time for the knowledge and skills you wish to teach and recognizing various days or weeks that won't allow for regular instruction. Make sure to plan for remediation,

enrichment, and contingencies, and check your unit plan for alignment with other instructional tools.

(6) Create your beginning-of-unit diagnostic tool

Successful teachers also know where their students are when they begin each unit. To avoid covering material that they already know, develop a diagnostic that assesses prerequisite skills and knowledge of unit objectives at the beginning of each unit. This will also provide you with a benchmark by which to measure future growth.

(7) Create a tracking system for your objectives

Once you've determined what you're teaching, you can now begin to create your classroom tracking system, a chart listing your objectives and your students' names that will allow you to record and measure the progress of your class and students on the knowledge and skills you are teaching.

(8) Continually adjust your plan Adjust your plans based on assessment data, including your diagnostic. Interpret your data to determine class strengths and weaknesses and tailor your instructional plans in response to this information. Determine ways to include remediation and review of prerequisite skills into your unit calendar. Also, make sure to recheck your tools for alignment after making appropriate adjustments.

- Unit planning is something that you may do several times during the year. And, it can involve a considerable time investment. However, the sense of direction and organization such a plan provides you and your students can be phenomenal.

In the next few chapters, we will continue to zoom in on your classroom, addressing the planning that occurs for each particular day of instruction.

Lesson Planning, Part I: Standard Lesson Structure

Chapter Five

- I. The Opening – What Students Will Learn And Why It Is Important
- II. Introduction To New Material – The Explicit Explanation
- III. Guided Practice
- IV. Independent Practice
- V. The Closing – Stressing Connections And Checking For Understandings

Lesson Planning Overview – Chapters Five, Six, Seven, and Eight

The last two chapters of this course introduced you to the bigger-picture maps that teachers make of their year (the long-term plan) and of discrete pieces of their year (the unit plan). This chapter will take your planning skills to a more detailed level, focusing on the day-to-day planning that teachers use to move as efficiently and effectively as possible, on a daily basis, toward the goals laid out in their long-term and unit plans.

The next four chapters all concern day-to-day planning and implementation of instruction. Chapter Five gives an overview of the Five Step Lesson Plan, one of the most effective lesson structures. Chapter Six explores the instructional tools at your disposal for delivering and meeting your objectives with your students. Chapter Seven equips you with information about key factors that will help you make strategic choices about instructional methods. Chapter Eight considers the difficult – but fundamentally important – questions surrounding differentiation of your instruction to meet students' varied ability levels; in later chapters, we will also focus in particular on supporting English language learners and students with special needs.

Introduction – The Components of the Five Step Lesson Plan

While schools often require teachers to turn in their lesson plans and to complete them in a certain format, it is important not to fall into the trap of completing lesson plans simply to meet the principal's requirement. Rather, you need to plan your lessons in order to ensure that you are taking the most thoughtful approach possible to get your students where you want them to be. Regardless of the particular format your district might require, you will need to be sure that you are making the format work for you, and that you are writing the plan not in order to meet a particular requirement but rather to ensure that your students actually accomplish the objective.

Do not be confused by the numerous lesson plan formats that are accepted and used; variations among them can often be reduced to different terminology and presentation styles. Regardless of format, **every effective lesson plan should build toward the achievement of the objective and connect to long-term instructional goals.** It is imperative that all parts of your lesson plan align to the objective, the lesson assessment used to measure student mastery of this objective, and, ultimately, your big goal. This alignment focuses your instruction, ensuring that your planning is strategically leading students toward success. The importance of alignment was first introduced in the chapter on long-term and unit plans, and it holds the same value for your lesson plans as well.

As discussed in the *Learning Theory* text, students often acquire knowledge and skills most effectively through the “I do, we do, you do” approach. This means that teachers first show or model for students what they need to know or be able to do (“I do”). Then students are given adequate time to practice together with assistance of their teacher and peers (“We do”), followed by a period where they attempt to

demonstrate mastery of the knowledge and skills on their own (“You do”). This “I do, we do, you do” framework serves as the basis for one of the most common lesson structures - **the Five Step Lesson Plan**. Let’s look at some of its features.

In implementing the Five Step Lesson Plan you first should ensure your students know what they are about to learn and how that relates to what they know and where they are heading. (We’ll call this the “Lesson Opening.”) Then you’ll want to coach students through the material by drawing on what they already know, presenting them with concise key points and engaging them in activities with varying levels of support to provide greater clarity around the main concept or skill. After providing students with multiple opportunities to practice, you will also measure student understanding of the objective through a formative lesson assessment. (This is the real “heart” of the lesson. We’ll call this “Introduction to New Material,” “Guided Practice,” and “Independent Practice.”) At the end of the lesson, you should pull everything together and summarize what was learned, so that students leave with a clear understanding of the main concept of the lesson and how they can apply the concept to future situations. (This we’ll call the “Lesson Closing.”) Checks for student understanding, a very important piece of each lesson component, should be woven into each stage. You can get started using this format with the **Five Step Lesson Plan Framework** worksheet in the Toolkit (p. 52). ✖

This summer we will look at lesson planning through a generic lens of a clear beginning, middle and end. The titles in this chart will serve as our common language for the duration of the institute.

The Five Step Lesson Plan is effective because it has many of the features common to all effective lesson formats. It is important to note that this is only *one* model that aligns with the qualities of effective lesson planning and serves the principles of effective learning. Other lesson

Beginning	(i) Lesson Opening
Middle (The heart of the lesson)	(ii) Introduction to New Material
	(iii) Guided Practice
	(iv) Independent Practice
End	(v) Lesson Closing

models, such as the balanced literacy block (often used in elementary language arts lessons) and the 5-E Lesson Cycle, may also effectively lead students to mastery of your objectives. In the fall, you may need to adapt your lesson-planning format to reflect the language of your district or principal. For examples of Read Aloud (part of the balanced literacy block) and 5-E lesson templates see **Alternative Lesson Plan Formats** in the Toolkit (pp. 53-59). ✖ You should familiarize yourself with the language they use, so that you will be better able to adapt to any specific expectations for lesson planning this fall. No matter what format you end up using, you should always ensure that it serves the purpose of a quality lesson by effectively leading students to reach your instructional goals.

Backwards-plan your lesson

To create your lesson plan, you should backwards plan in the same way you design your assessments, long-term plan, and unit plans. Under this approach, you start planning your lesson with the *end* in mind *first* – that is, you should begin by understanding your lesson objective and establishing a clear vision of what it will look like for students to attain this goal.

Before you create a lesson opening or begin thinking about how to deliver your content, you must determine what outcomes you expect your students to produce. What exactly should students know or be

Standard Lesson Structure

able to do differently by the end of your lesson? What evidence do you need in order to determine whether students have achieved your goal? Once you have established your vision of student mastery, use this understanding to design your formative assessment so that it elicits the necessary evidence. Follow the same guiding questions for creating assessments described in Chapter Two to facilitate your planning of this assessment. Make sure you clearly define what outcomes you expect of your students. Without this clarity on what you want to achieve in your lesson, it will be difficult to lead students to mastery of the lesson goal. As you have seen throughout this text, the backwards design process is a crucial skill to be utilized in all of your planning, including the creation of lessons. Consistently using this approach to planning calibrates your instructional actions to strategically align with and build toward your ultimate end—student achievement.

Next we will outline the purposes and key principles of each step in the lesson plan. It is imperative that you carefully consider what you and your students will be doing during each of these steps as you develop your lesson plan. Teachers that “wing it” by presenting lessons without a comprehensive plan are not as effective in leading students to significant academic gains. Thus, carefully plan all parts of your lesson so that they lead to achieving the objective. Doing this is critical for successful instruction. While we discuss the parts of the Five Step Lesson cycle in the order that you will present them to students, this is not the chronology you should use in actually planning your lessons. Don’t forget to start with establishing your lesson vision and designing the assessment. Then focus the rest of your plans on accomplishing the objective.

I. The Opening – What Students Will Learn And Why It Is Important

A common rookie mistake is to fail to appreciate the importance of a lesson’s beginning and end. On the front end, some teachers jump into lessons without capturing student attention or providing any context for what is about to be learned. Consider the following “lesson opening”:

“Okay class, open your books to page 321 and begin reading. When you get to page 332 answer questions 3 through 11. Any questions?”

The kids need a reason to listen to you – a reason to buy what you’re selling. You have to lead with a hook, and keep it coming.

Ryan Hill, New York City ‘99
Founder and Director
TEAM Academy Charter School

Lesson introductions like this one leave students with no understanding of the lesson purpose, no reason to be engaged, and no incentive to achieve. More than likely, beginning a lesson like this will contribute to off-task behavior, student apathy, and minimal progress towards any end goal. Without any sense of what is about to happen, why it is important to be able to answer questions 3-11, or how pages 321-332 connect to what has been done before, students may simply be following directions (if they even do

that!) without connecting their work to any prior knowledge or future experience. According to the Association for Supervision and Curriculum Development (ASCD), students who know what they are learning perform 27 percentile points higher than students who cannot articulate what they are learning.

Jere Brophy’s summary of academic research verifies the importance of a strong opening for every lesson:

Research indicates the value of establishing a learning orientation by beginning lessons and activities with advance organizers or previews. These introductions facilitate students’

learning by communicating the nature and purpose of the activity, connecting it to prior knowledge, and cueing the kinds of student responses that the activity requires.¹⁵

The lesson opening should clearly communicate what students are going to learn, why it is important, how it relates to what they already know, and how it is going to happen. You'll also want to ensure that your opening engages your students, and that it makes clear any behavioral expectations unique to the particular plan. Finally, you'll want to assess your students' understanding of the lesson purpose and procedure by allowing them time to ask clarifying questions about the purpose of the lesson or the final product, and/or by asking them to summarize what it is that you want them to take away from the lesson opening.

When students understand WHY you're teaching a lesson and WHAT they can expect to get out of it, they will learn leaps and bounds more than if you skim over the objective.

**Amanda Timberg, Los Angeles '96
Regional Director, Greater Manchester
Teach First**

The following text summarizes key points to cover in a lesson opening.

Effective Lesson Openings—Key Points and Examples

Communicate to students WHAT they are going to learn.

- "Today we are going to solve word problems that require you to add and subtract fractions."
- "Our objective today is to learn how to translate word problems into a mathematical equation for you to solve."

Communicate to students WHY IT IS IMPORTANT to learn this material.

- "These word problems will let you solve problems that you might face in everyday situations that require fractions, like when you are cooking, or divvying things up between friends..."

Communicate to students HOW IT RELATES to what has been done previously.

- "For the last week we have been adding and subtracting fractions with like and unlike denominators. You all have become pros with that! Today you are going to solve word problems that will allow you to practice that skill in real world situations."

Communicate to students HOW the learning will occur.

- "I'm going to show you some tricks to translating word problems into equations. Then, as you probably noticed when you entered, we are going to use the stations set up around the room. At each station you will have two word problems to read and solve. Our fraction pieces are there to help you if you need them. When you get to station seven, you will write your own word problem that one of your classmates will solve tonight for homework."

¹⁵ Brophy, Jere. "Generic Aspects of Effective Teaching." *Tomorrow's Teachers*, ed. Margaret C. Wang and Herbert J. Walburg. Richmond, CA: McCutchen Publishing Corporation, 2001, p. 23.

Standard Lesson Structure

Engage students and CAPTURE THEIR INTEREST.

- By having the room set up in a different way when students enter, you will pique their interest immediately. (Sometimes what you say about the lesson will be engaging, other times what you do or materials you have in the room will draw them in.)
- You might start the lesson with a “discrepant event” or mentioning a curiosity that the lesson will attempt to address. “We know how to subtract when the number on top is bigger, but what if it’s smaller?” Or “is it possible that a man could go from weighing 180 pounds to zero pounds and back to 180 pounds, all in the same day? By the end of the lesson on mass, you will be able to explain why that is absolutely possible.”
- At the beginning of a new unit, Nikeya Bridges, Greater New Orleans ’00, and her class would receive an oversized letter from their imaginary friend, Wonda Why, full of hints about the new unit.

Nikeya’s third graders loved predicting what they would be studying based on the clues hidden in the letter.

- Some teachers give their students a journal prompt that aims to access prior knowledge or understanding about the subject matter or its themes. Before a lesson on the War of 1812, you might ask students to “describe a time when someone took something of yours, and you wanted to get back at them.” If you were introducing a lesson on genetics, you might have students first describe the physical similarities between members of their families.
- Others start with problems or exercises they call a “Do Now” or “Warm Up,” and students are expected to begin this activity when they come in the door. Brent Maddin, South Louisiana ’99, teaches high school science and has his students begin the daily “Catalyst” after copying down the day’s agenda. Later on in the semester, students use their agendas to create study guides for exams.

I experimented a lot with active, super-creative openings and closings to my lessons. Soon, however, I realized that a consistent structure was more effective for getting kids on track immediately AND for ensuring maximum retention! So, the first 5 minutes of class was the “Start-Up,” usually a creative quickwrite or a few interesting questions to focus them on the topic for today. The last five-minutes were reserved for “Wrap-Up,” which reviewed everything we learned today and usually put a few students on the spot to give summaries or news reports. The best part was that the Start-Ups and Wrap-Ups were all written in their class folders, and could be flipped to for a quick refresher. (Did wonders for classroom management at the beginning and end of class, too.)

Kelly Harris-Perin, Delta ’98
Director of Learning and Development,
Teach For America

Provide and model CLEAR, HIGH EXPECTATIONS OF BEHAVIOR (as to materials and activities).

- “For this lesson you will need your math journal and a pen or pencil. Get them out now before we begin.”
- “After my explanation of some key strategies, you will work individually at your station for five minutes. If you have any questions, raise your hand and I will assist you. When you hear the timer go off, you will move to the next station and begin to solve the two word problems there.”
- “Chantelle, will you please show the class how you will move from one station to the next?”

Check for understanding by asking students to SUMMARIZE EXPECTATIONS and ASK CLARIFYING QUESTIONS.

- “Can someone clarify what you will do at each station?”
- “Are there any remaining questions about what we are doing before we begin?”

Three Example Lesson Openings

While it may not always be applicable to articulate “how the learning will occur” or “behavior expectations” at the start of your lesson, you should integrate as many of the above criteria as possible into every opening. Notice how the following relate what students will learn, raise curiosity and convey the importance or interest of the lesson.

Objective #1 (Elementary ESL): *Students will be able to use regular comparatives correctly in an oral presentation.*

Lesson Opening:

Ms. Cate passes several pairs of objects around the room: a full and an empty jar of the same size, a sharply focused and a fuzzy photograph, and a ripe banana and an unripe one and asks students to jot down in their notebooks some quick differences between the two objects in each pair. During the discussion that follows, the teacher guides students towards making comparisons between the two objects in each pair and records on the board the different ways in which students use the comparative (one banana is “softer,” “riper,” “smellier,” “more flexible,” than the other one). She points out that students are sometimes using the suffix “er” and sometimes using the word “more” – and states that, by the end of the lesson, they will know definitively when to use the different forms.

Teacher’s Intentions:

By beginning the lesson with a bit of intrigue (“Why is Ms. Cate passing out these objects?”) and getting everyone involved by examining objects and recording observations, students are immediately invited into the lesson. The activity connects prior understanding (the student’s working knowledge of the comparative) with the objective of the day, clearly stated as consistently being able to use the comparative correctly.

Objective #2 (6th grade): *SWBAT write a bibliographic entry for a book.*

Lesson Opening:

Ms. Cartwright starts class with a group brainstorm, “Is it ever OK to copy someone else’s work?” After soliciting a few student responses, she explains that there are occasions when you can include other people’s thoughts and ideas in your own work; you just have to give them proper credit. She then directs the class to the back of their textbooks, containing a bibliography. She explains that the textbook authors wanted to give credit to the books that had helped them come up with their own ideas for the textbook. The authors also wanted the readers to be able to find these books if anyone ever wanted further information. She indicates that students will be learning how to give proper credit to the sources that they use.

Teacher’s Intentions:

This lesson begins with a question that immediately draws students in: the hot topic of cheating and the discrepant idea that it might be acceptable to copy. Ms. Cartwright furthers the relevance of her lesson by examining the textbook bibliography and explaining its real-world purpose. She makes the learning objective clear.

Standard Lesson Structure

Objective #3 (10th grade biology): *SWBAT describe the biological risks of drug use.*

Lesson Opening:

When class begins, students will follow the instructions on the board: “For your Start Up, draw a T-chart in your notebook. On the left hand side, you have three minutes to list all of the things a smoker, drinker or other drug-user might say are the advantages of smoking, drinking or taking drugs.” After two minutes, ask students to share their lists. Ms. Donnelly explains that the list for disadvantages – or dangers – is much longer than the lists they just generated, and they will be spending the class figuring out some specific ways in which smoking, drinking and drugs destroy the body. Referencing their previous units on the different organs and organ systems, Ms. Donnelly notes that this lesson will extend their current understanding because they had only studied the structure and function of healthy organs. By the end of the period, students will not only be able to articulate how different drugs deteriorate different organs of the body (not just the lungs, as many students assume), but they will also have a list of specific medical reasons for just saying no to drugs.

Teacher’s Intentions:

Ms. Donnelly’s students have a routine every day when they come in: look at the “Start Up” on the board and follow the instructions, so there is little room for confusion about expectations. The activity (listing the supposed advantages of drug use) is also a bit unexpected and likely to capture student attention. With the right hand column empty, the day’s focus is clear: being able to describe the disadvantages of drug use. The teacher connects the objective with previous learning and explains its importance by noting that students will be equipped with the medical reasons for saying no to drugs.

Of course, effective lesson openings may take many forms. Sometimes it may be most effective to use a device to build students’ curiosity, other times a simple dialogue will be the most effective strategy. However you decide to open your lesson, ensure you clearly address the points we’ve explained in this section.

When crafting your lesson opening, you may want to refer to some sample **Methods for Opening a Lesson** in the Toolkit (pp. 60-61). ✖ The methods included there involve a large number of students, which in turn has a positive effect upon classroom culture and student motivation.

II. Introduction To New Material – The Explicit Explanation

Now we have reached the moment of truth, the moment when you convey something new – a skill, a bit of knowledge – to your students. Your students are primed to receive this new information because you have gotten their attention, told them what to expect, and prepared their memory to make connections to new information by referring to prior knowledge. The Introduction to New Material phase of the lesson plan is the time when the teacher takes center stage and actually explains, models, demonstrates and illustrates the concepts, ideas, skills or processes that students will eventually internalize. You may recognize this phase most vividly from your four years of college: the lecture. In K-12 education, because children have not yet acquired the skills to process and organize data for long stretches of time, the Introduction to New Material will be much more varied and nuanced than a teacher pontificating at a podium.

The planning and execution of this phase is key. You are the expert in the room, so your explanations and examples need to be both clear and correct in order to serve as the mold in which student understanding takes shape. It is not uncommon for teachers to find themselves explaining one concept – and then realizing in the middle of the presentation that they need to explain a second or third idea as background for understanding the first. The main point is lost, and the students cannot discern what it was they were supposed to have learned. One cannot underestimate the importance of this fact: when it's time to tell your class what they need to know, the information students glean completely depends on what you present and how you present it.

In addition to deciding what to present, you must also choose *how* to deliver this information. If we chose one lesson objective, distributed it to ten different teachers, and then observed these teachers in the classroom, we would probably find that they chose ten different ways to introduce the new material embedded in the lesson objective. Teachers may choose to lecture, present a demonstration, use a text, do a simulation, explore the Internet, or visit a museum.

Of course, what you present and how you choose to present your material are only two key parts of your instruction. While you may feel that you have a lot of content to deliver, this step should not be the bulk of your lesson. Always remember to leave plenty of time for students to practice with the new material.

Here are five guiding questions and principles to effective explanations.

Outlining Main Ideas and Details

Your students can only remember so much in one sitting, so it's a good idea to identify the key points (versus the specific details) of your New Material. If your objective was for students to explain how global warming works, you'd first outline the pieces of that process yourself.

- I. The atmosphere traps heat like a greenhouse.
 - a. A greenhouse serves to trap heat.
 - b. The sun's rays hit the Earth and are often "trapped" by the atmosphere's gases.
 - c. Trapping is important to maintain a temperate climate.
 - i. If there were no atmosphere, like on Mars, we'd freeze.
- II. Human processes are creating an overabundance of gases in the atmosphere.
 - a. Manmade reasons for the production of gases: carbon dioxide emissions, burning of fossil fuels, deforestation, deep plowing of fields, CFC-filled refrigerators and air conditioners.
 - b. We use the word "overabundance" because fewer of the sun's rays can escape, making the Earth dangerously warm.

You may be tempted to have students know all of the different gases that make up the Earth's atmosphere, but then realize it is more important for students to understand the big picture before learning more minute facts.

1. What information will you convey? Emphasize and reiterate key points without glossing over ideas or drowning students in detail. Effective teachers determine what they want their students to be able to leave the classroom being able to say, think or do. Identifying what key points to emphasize, however, can be challenging, especially for new teachers. It is easy to forget how complex certain information can seem to students who are experiencing it for the first time. Therefore, keep in mind the developmental levels of your students as you determine your key points. You should not overwhelm or confuse you class with excessive information, nor should you skim over important ideas necessary for students to understand the content. To help do this, effective teachers create an *outline or scaffold* of main ideas and supporting points (see the adjacent table) and develop a list of *take-home messages* that they want their students to leave with. If they're teaching a new skill, such as how to solve a one variable equation, they pinpoint *key steps* ("First combine like terms...then isolate the variable") before they teach the lesson that students can remember and use.

Standard Lesson Structure

During the lesson, effective teachers *model* skills by going through the key steps they outlined for their students, such as solving a sample problem and narrating their approach. They use *visual cues* (such as underlining or using different colors on the board), *vocal cues* (changing the volume of your voice – either suddenly softer or louder), *signal phrases* (“The fourth and final point is...”), and *body language* (through the use of gestures or position in the classroom) to *highlight* key concepts.

- “So main idea number one is that the Civil War was largely an argument over states’ rights. Underline the phrase states’ rights in your notebooks, and write down one example of a states’ rights conflict that we have discussed.”

2. How will you convey the information? Use multiple approaches when presenting new information.

Two basic methods teachers use to help present material are modeling and lecture. These two methods are not mutually exclusive, of course. Many teachers often mix both techniques in a single lesson depending on the context of their instruction. In the next chapter we will discuss tips for creating effective lectures and demonstrations in more detail. For now, note that effective presentations do not simply involve the teacher talking, but may include *written text*, *visual aids* (posters, graphics, illustrations), *movement*, *additional sounds*, *manipulatives*, or even *smells and tastes*, if they help students remember key ideas. You can also connect to students’ prior knowledge by using *examples* (and non-examples) and *anecdotes*, all in the name of making it easier for students to access the new information later.

- “Here’s another way of thinking about it. An independent clause (“I went to the store”) is like Destiny’s Child’s ‘Independent Women.’ It’s a sentence that can stand by itself. Dependent clauses (“because we were out of milk”) are like the backup singers; they don’t perform by themselves, but they help out the main act.”

3. What will students be doing? Children do not learn as passive agents, so build in activities that allow students to “take in” the information. What your students remember from a lesson depends on what they are thinking about during your presentation of material. Consequently, you should always proactively anticipate where your students’ attention will be and create ways to aid their processing and retention of key information. To do this, many teachers have students create *memory or processing aids* to help students to organize information in their heads. *graphic organizers*, described in more detail in the next chapter, give students a structure in which to take notes. Another strategy is to stop the presentation and *ask clarifying questions* or *have students paraphrase* the key ideas thus far. Creating an outline of your presentation will allow you to notice natural breaks in the lesson during which to allow students to process the information more deeply. To keep students’ attention and allow them to connect new knowledge to what they already know, teachers may ask *fact-based, objective questions* (“What are the facts?”), but then *reflective* (“What do you think, and how do you feel?”), *interpretive* (“What does all this mean, and what are the implications?”), and *conclusion-driven* (“What should happen next?”) *questions*. You can also have students generate examples and analogies themselves.

- “I need six volunteers to help me demonstrate the different stages of metamorphosis in front of the class while everyone else fills in the flowcharts of their graphic organizers.”

4. How will you know that your students understand? Target potential misunderstandings. You need to anticipate potential areas of confusion for your students and *adjust your pacing* to allow time for *noting and clarifying potential contradictions*. When you are teaching complex ideas or rules (all of the exceptions to English spelling and grammar rules, for example), *choose familiar terms* and *explain any new vocabulary words*. Allow students to *make mental bridges from prior knowledge* (noting that misanthrope comes from the same root as miserable, for example) to minimize all of the completely new

information that students must internalize. Another effective technique is to *make common mistakes* during your presentation and have students correct your errors - a method that can also serve as an effective way to check for understanding. Finally, you may determine that there is so much prerequisite knowledge involved that it is necessary to break the lesson into two different lesson objectives. It probably would have been too much to cover the process *and* the effects of global warming in one 45-minute lesson, for example.

- “A very common mistake when multiplying decimals is forgetting to move the decimal point, so I want you to pay extra careful attention to how I do this...”

5. How will you know that your students understand? Check for understanding. Before moving to student practice, it is important to assess student understanding of the new material, just as you checked for student understanding of the lesson purpose and procedure during your lesson opening. Think about what is absolutely essential for students to understand before they begin to practice and what can be reinforced later. Checking for understanding—by asking students to paraphrase the information orally, write a one-sentence summary, or answer questions—is integral to introducing new material so that you can adjust your instruction accordingly. Only by knowing what students do and do not understand can you tailor your lesson to meet their needs. Here are some examples of teachers checking for understanding during their Introduction to New Material:

- “Hold up two fingers if you can tell me why independent clauses are like Destiny’s Child.”
- “What do I mean when I say the Civil War was largely about states’ rights? Take 30 seconds to write a one-sentence answer in your notebook. Then you’ll compare your response with a partner’s.”

Three Example Introductions of New Material

Keeping in mind that the next chapter will provide further explanation of the methods for presenting new material, notice for now how the following Introductions to New Material highlight key points, use multiple approaches, plan for student participation, consider common confusions and check for understanding.

Objective #1 (Elementary ESL): *Students will be able to use regular comparatives correctly in an oral presentation.*

Introduction to New Material:

Ms. Cate points out the key to knowing how to form a comparative is counting the word’s number of syllables. She unveils a three-column chart indicating that adjectives with one syllable usually take *-er* and *-est*. Adjectives that have two syllables and end in *y* (*early*), *ow* (*narrow*), and *le* (*gentle*), can also take *-er* and *-est*. Almost all other adjectives with two or more syllables require the use of *more* and *most*. She knows that some students may never have counted a word’s syllables before, so she demonstrates by clapping out the stresses of a series of words. Using the chart, she shows how the student-generated examples from the Lesson Opening demonstrate how the rule works. Students copy the chart in their notebooks and fill in the student-generated examples during Ms. Cate’s demonstration. She walks through the classroom, monitoring.

Teacher’s Intentions:

By focusing her lesson on the syllable and suffix rules for forming comparative adjectives, Ms. Cate boils down her lesson into some memorable main points. She uses a visual aid to highlight these points, employs examples and plans for the potential confusion over syllable counting. Students are recording the information through a graphic organizer.

Standard Lesson Structure

Objective #2 (6th grade): *SWBAT write a bibliographic entry for a book.*

Introduction to New Material:

Ms. Cartwright notes that the way to give proper credit to books you've used is to create a *bibliography*. Students already learned the word *bibliophile*, and Ms. Cartwright guides them to see the relationship between the two words. She then points to the board, where she has written the structure for a bibliographic entry for books (with different colors of chalk for the five different parts). She asks students what they notice about the entry: that the author's last name comes first, followed by the first name; the title has been underlined; there is a city, a company name and a year. Ms. Cartwright asks her students, "What is a publisher? Why might it be important to have the publisher's name? Why might it be important to have the date of publication?" She then affirms that a publisher helps authors get their books printed and sold. Including this information in the bibliography is useful in case people want to find the book themselves. She further mentions that this information can usually be found on one of the first inside pages of the book, and she demonstrates with the class textbook, showing everyone the publisher's name, which is the most difficult to locate. She then summarizes the five parts of a bibliographic entry in order. She asks students to write down the bibliographic entry in their notes and circulates to make sure students are doing it correctly. She reminds everyone to feel free to use colored pencils if necessary to separate the different parts of the entry.

Teacher's Intentions:

Ms. Cartwright explicitly highlights the different pieces and the sequence of a bibliographic entry, the new information that she wants her class to learn. By asking questions about the relevance of the book's publisher and date of publication, she is moving her lesson beyond sheer memorization and into the world of practicality. She realized that the book's publisher is often difficult to find, so she decided to spend extra time explaining how to locate that information. She enables student input of the information by providing targeted directions for taking notes. She also takes advantage of student prior knowledge (and reinforces the idea of relationships between words) by noting connections to the root "biblio."

Objective #3 (10th grade biology): *SWBAT describe the biological risks of drug use.*

Introduction to New Material:

Ms. Donnelly first displays pictures of a healthy liver and the liver of an alcoholic, a healthy lung and the lung of a smoker, a healthy brain and the brain of a cocaine user. The teacher then asks students to read silently a handout from the Just Say No Foundation, which describes the ways in which smoking, drinking and drug-use eat away at the various organs. The teacher also shows a short film, featuring people who describe the effects of their drug use on their bodies. Students are instructed to fill the right-hand side of their T-chart (dangers of drug use) during their reading and the film. After the film, Ms. Donnelly asks students as a group what surprised them most about the stories they heard.

Teacher's Intentions:

Ms. Donnelly uses pictures of charred lungs and corroded livers to introduce her points about the consequences of drug and alcohol use, knowing that students are likely to remember the visually arresting images. Students continually process new material from a variety of sources by recording information in their graphic organizers. Ms. Donnelly shows the film to let students see and hear how drug use affected real lives. In addition, she allowed them to connect to the material in more personal ways by asking for their responses to the material.

The Bottom Line—Reaching Your Objective

There is a lot to consider when planning your Introduction to New Material. We have not even discussed the choices that you will be making when you plan your lesson (what precise method you will use to deliver the new material, how you will have students grouped during this phase of the lesson process) and how you will make those choices (by considering students' needs and interests, the objective's cognitive level, the nature of the content, and the time and resources available). You will read more about making these decisions in the next two chapters.

But whether you are teaching your students how to end sentences with a period, how to explain the effects of industrialization on agriculture, or how to use Avogadro's number to make chemical calculations, your instructional choices must always align with your objective. This begins with the key points or steps you want your students to take away from your lesson. By emphasizing main ideas over supporting details, presenting information through multiple approaches, giving students a role in their learning beyond "listening," and being mindful of potential misunderstandings, you can help students begin to store the knowledge and skills necessary for objective mastery into their long-term memory. While introducing new material is important, this stage in the lesson cycle should not dominate your lesson plan and execution. You always need to give students plenty of time and opportunities to engage with and practice the key ideas. Practice constitutes the next two parts in the Five Step Lesson cycle.

The Connection Between Management and Instruction

As you have probably realized, effective classroom management is closely tied to effective instruction. In fact, while you will be exploring these skills in separate courses this summer, *Instructional Planning & Delivery* and *Classroom Management & Culture* are inextricably combined. Indeed, as much as your classroom environment influences your ability to teach, your instructional planning and delivery influences your classroom environment. If a lesson is well planned and your instructional strategies are effective, students will be more focused on learning and less inclined to engage in inappropriate or distracting behavior. While they are essential to student success, excellent classroom management systems alone will not make for an efficiently run classroom if you are implementing an ineffective lesson plan.

All of this is to say that successful teachers think about lesson planning and classroom management simultaneously. As you are planning a lesson, you will need to think through what each student is supposed to be doing at every part of the lesson to minimize opportunities for off-task behavior. When one student is doing a problem on the board, for example, what do you expect other students to be doing while they wait? By anticipating these situations (a skill at which you will quickly become more adept) and thinking through these scenarios in advance, you will avoid situations in which students begin to misbehave simply because there's nothing else to do.

III. Guided Practice

After new material has been introduced, students will need time to practice their new skills and knowledge. "Practice is one of the most important yet least appreciated aspects of classroom learning."¹⁶ Teachers can become so intent on introducing new material, explaining the concept, demonstrating the skill, or modeling the process that they do not allow time for *students* to explore new material and begin to internalize it. Likewise, teachers often leave students to work independently right after introducing new material, without first taking time to support students while they practice. If teachers do not allow time for student practice—both with guidance and independently—they will not have an opportunity to assess the degree to which students understand the new skill or concept.

Creativity is a Means, Not an End

A common pitfall for new teachers is to focus so much on *how* they are presenting material that they forget to consider their objective. While sometimes a creative lesson plan will be more effective than a less innovative one, you should not strive for creativity at the cost of your lesson's effectiveness. For example, you may become immersed in developing a hands-on math game that will engage your students, but forget to consider exactly what mathematical concepts students will learn through participating in the activity. A teacher who takes such an **activity-driven** approach may discover that students (and the teacher) are well entertained but have not developed the skills and knowledge expected for their grade.

¹⁶ Brophy, Jere. "Generic Aspects of Effective Teaching." *Tomorrow's Teachers*, ed. Margaret C. Wang and Herbert J. Walburg. Richmond, CA: McCutchen Publishing Corporation, 2001, p. 27.

Standard Lesson Structure

The purpose of practice, of course, is to engage students with the material to a degree that causes them to internalize it for the long-term. “Research indicates that skills practiced to a peak of smoothness and automaticity tend to be retained indefinitely, whereas skills that are mastered only partially tend to deteriorate. Most skills included in school curricula are learned best when practice is distributed across time and embedded in a variety of tasks.”¹⁷ Daniel Willingham also notes in that students need to practice ‘beyond perfection’ to maintain perfection in acquiring knowledge and skills¹⁸. That is, for students to truly internalize and master material, they need to successfully practice multiple times at the level required by the objective. This repeated practice helps move knowledge and skills from working memory to long-term memory, allowing students to retain the content of the lesson over time.

Of course, “student practice” does not mean that the teacher is not actively involved in the classroom’s activities. In fact, “The effectiveness of assignments is enhanced when teachers explain the work and go over practice examples with students before releasing them to work independently, then circulate to monitor progress and provide help when needed.”¹⁹

Thus, there are two stages to the practice process. If the Introduction to New Material was the section in which the teacher modeled, demonstrated, illustrated and explained, the Guided Practice stage is where teachers share the reins – gauging student practice of the new material and clarifying steps and points. When you get directions to someone’s house, you may repeat them back to your friend, making sure you heard correctly and understand all of the nuances. In Independent Practice, you are completely in the driver’s seat, demonstrating your performance of the objective.

When you think about the Guided Practice section of the lesson sequence, it may help to imagine an apprentice testing out the steps that an expert has modeled, or an actor rehearsing a scene that the director has staged. During this phase, the expert is still watching, gauging proficiency, clarifying points of confusion; the director is still making adjustments and critiques. Yet the apprentice and the actor – the ones who will be eventually expected to master the skills and the scenes – are actively involved in practicing.

Practice Makes Better

In some highly efficient classrooms, teachers have developed systems that students use on a regular basis for introducing new objectives, or reinforcing or extending old ones. Here are three:

- **Morning message.** Usually used in elementary classrooms, the teacher writes on chart paper or on the board a relevant and topical message for the day (the schedule, a birthday, current events). After reading it as a class, the teacher takes a few minutes to ask questions relating to specific literacy skills that the students have learned (“Can anyone find an apostrophe? Why is it there? Why is this word capitalized?”) or to discuss reactions to the message (“What were the main points of last night’s State of the Union address? Was it a good speech?”)
- **Do Now.** Used in many different contexts, the teacher can have an assignment on the board for students to complete as soon as they sit down. Sometimes, this can serve as anticipation for the upcoming lesson (making it part of the lesson opening), but often teachers will use this activity to have students answer quick review questions.
- **Journal.** Classrooms across the grade levels have regular journal assignments where students engage in further thinking about content by referring to previous lessons or connecting current knowledge to earlier learning. In kindergarten, students may use their journals to draw pictures predicting what will happen next in a story shared during reading time. In a European history class studying Britain’s civil war, students may be asked to imagine what Machiavelli would have advised Oliver Cromwell had they lived during the same era.

¹⁷ Ibid.

¹⁸ Willingham, Daniel. “Practice Makes Perfect—But Only If You Practice Beyond the Point of Perfection.” http://www.aft.org/pubs-reports/american_educator/spring2004/cogsci.html, accessed 1/3/08

¹⁹ Brophy, Jere. “Generic Aspects of Effective Teaching.” *Tomorrow’s Teachers*, ed. Margaret C. Wang and Herbert J. Walburg. Richmond, CA: McCutchen Publishing Corporation, 2001, p. 28.

Guided practice comes in many forms: teacher questioning, sample problems, graphic organizers, concept webs, recitations, summaries, and the review of mnemonic devices. It may occur in groups or as a whole class. When dealing with knowledge objectives, the Guided Practice may be the time for students to put away their notes, attempt to recall the facts or concepts taught, or work with the ideas they've been taught in a slightly new way. When practicing skill-based objectives, such as math facts or grammatical corrections, teachers may provide a series of practice problems.

Because of the overriding importance of practice for student learning, it is imperative to carefully plan all parts of your guided practice to ensure successful instruction. As with the Introduction to New Material, there are a number of ways to plan the phase of Guided Practice. Yet several principles overlap these methods.

Be clear about and model behavioral expectations. Once students start participating in Guided Practice, they are often involved in individual, partner or small group work. You will want to be very explicit about the behaviors you wish to see in these small group settings. As you will learn about in greater detail in your Classroom Management and Culture course, you end up maximizing instructional time by taking the opportunity to practice procedures and set clear guidelines upfront.

Not So Effective: "Get into groups and make a model airplane."

Effective: "I am going to give each member of the group a job. The materials manager is in charge of..."

Ensure that all students have an opportunity to practice. A common and dangerous mistake during the Guided Practice phase of the lesson cycle is to allow one student to serve as a representative for the entire class, leaving the rest of the students without adequate engagement with the material. This can be an invitation for misbehavior. Asking for volunteers to participate is an excellent technique, but you should simply be mindful of what all of the students are doing in the meantime. Having the rest of the class discuss and evaluate the answers of volunteers, for instance, can be one way to help ensure the rest of the class is involved in the practice. A main way teachers engage students at this stage in the lesson cycle is by completing a sample problem together as a class. During this activity, you may have students walk you through or explain each part of the process that you just presented. In addition to constant circulation within the classroom and frequent questioning discussed earlier, teachers will often use a choral response, some variety of hand-signal, or another form of checking for understanding (you'll find a host of ideas later in this section) to gauge student understanding.

Not So Effective: "Carmen, come up to the board and complete these division problems. Everybody watch!"

Effective: "Everyone, use your mini dry-erase boards to answer number seven. Raise your hands when you're done. If you finish early, check your work by multiplying..."

Standard Lesson Structure

Use multiple opportunities for practice. In order to solidify skills and concepts in students' minds, teachers will plan a host of practice tasks – a series of problems, rather than just one or two. Remember that students need to engage in multiple examples of practice in order to gain proficiency with a skill or piece of knowledge. Often, the tasks teachers create will come from several different contexts to expose students to the various arenas in which they may encounter the new knowledge or skills. Since students work at different paces, and because students need to be exposed to material several times, effective teachers have a variety of practice activities available.

Not So Effective: “We just learned about similes. Use one in a sentence before we move on.”

Effective: “When you are done locating the similes in the poem, please make a list of five similes you know from your favorite songs.”

Scaffold practice exercises from easy to hard. “Scaffolding” means maintaining high expectations for achievement but giving students the support they need as they grow to their potential. Some teachers are eager to jump to the more challenging aspects of a problem or concept, mistakenly assuming that all of their students understand all of the fundamentals. First, guarantee that your students can do simple iterations of a problem. *Then* move on to more nuanced or complex tasks.

Not So Effective: “In this first question, I slipped in an exception to the rule I just taught you...”

Effective: “In the first four examples we went through, the questions followed the rule we learned. But look at this last question. I slipped in an exception. Let’s take a closer look...”

Be clear how an activity aligns to the objective. Often, teachers intending to be creative will launch students off into some scissors-and-glue activity without communicating (or sometimes even considering) how the task relates to the lesson goal. It is excellent to have students involved in active learning, but be sure that they know the purpose of the exercise they’re completing.

Not So Effective: “Sammy’s going to stand in the middle of the room, and everyone else is going to rotate and revolve around him. Go!”

Effective: “Sammy is going to be our sun. Erica will be Earth and will rotate for us. Erica, when you face Sammy, you will hold up the ‘day’ sign. When you turn away, you will hold up the ‘night’ sign. Everyone else, write down why...”

While student practice should align to all parts of your objective, it can also include prerequisite knowledge and skills. For example, it is acceptable for students to first practice identifying different types of adaptations in order to then practice the skill of analyzing how these traits help living things survive. Just make sure that your practice activities are aligned to your lesson’s objectives—you don’t want to spend so much time teaching prerequisite skills that you fail to actually reach the objective.

Monitor and correct student performance. The whole point of Guided Practice is to provide a sheltered environment for students to shape their knowledge or skills. If students are showing signs of confusion, this is the time to go back and review missed concepts or ideas.

Not So Effective: “Does anyone have any questions? No? Great!”

Effective: “Everyone, raise up your mini dry-erase boards so I can see how we did. Aha! I see I confused some of you. Take a look up at the board for a moment...”

Three Examples of Guided Practice

Notice how these examples of Guided Practice give every student several different opportunities to engage with the material and allow the teacher to gauge student progress before moving on to independent practice.

Objective #1 (Elementary ESL): *Students will be able to use regular comparatives correctly in an oral presentation.*

Guided Practice:

Ms. Cate tells her students that she is thinking of an animal. The class needs to formulate comparative questions to get more information about the mystery animal in order to make a good guess at its identity. Examples: Is it noisier than a dog? Is it faster than a chicken? Is it more dangerous than a tiger? As each student makes his or her guess, Ms. Cate has the class use a graphic organizer to record the adjective used, count its number of syllables, refer to the corresponding rule for comparatives and verify that the child has used the comparative correctly. If a student does not use the comparative properly in his or her question, Ms. Cate does not answer. After every child has participated, students record their guesses for the teacher’s mystery animal – and the teacher announces the correct answer.

Teacher’s Intentions:

The teacher has designed an activity that reinforces the objectives continually while enabling everyone to stay engaged and participate. This activity could have neglected the objective of using syllable rules to determine proper comparative forms by having each student simply make their guess – without the graphic organizer. This would have limited each student’s practice to one opportunity, rather than involving students after every guess. The game-like aspects of the activity should also keep students engaged and motivated, and because students get to choose their own adjectives, the game is scaffolded to different levels of ability.

Standard Lesson Structure

Objective #2 (6th grade): *SWBAT write a bibliographic entry for a book.*

Guided Practice:

Ms. Cartwright distributes a sheet of 10 bibliographic entries that do not follow the proper format in one way or another. For each example, she asks students to circle the mistake. Ms. Cartwright circulates and checks for understanding. The first three entries are missing components of the proper format (no author's name). The next three have components out of order. The last four are subtler (author's first name first; commas or colons incorrectly written). After correcting the entries, students are to take out their copies of Lois Lowry's *The Giver*. She then asks a volunteer to state the first step for forming a bibliographic entry. After each step, students write that piece of the entry in their notebooks. They continue until they have written the entire entry. Ms. Cartwright unveils a poster featuring an entry for *The Giver*, explaining that she thinks she made a few mistakes. She asks students to compare the entries they wrote with her entry and circle where they followed directions and Ms. Cartwright did not. Once Ms. Cartwright's "mistakes" have been uncovered, students take out their individual library books and write an entry in their notebooks. The teacher monitors and assists.

Teacher's Intentions:

The worksheet activity is scaffolded to ensure that the teacher can eventually recognize all of the intricacies of the bibliographic entries – beginning with obvious errors (a missing piece), then focusing on sequence, and then getting even more nuanced. Then students practice the process while being prompted on the individual steps. Ms. Cartwright further reinforces the steps by presenting an example with many mistakes at once. By going through the process of locating and writing the information for a bibliographic entry, as well as noticing errors in the sequence of the entry, students are taking the next step toward being able to accomplish the task independently, which they do with teacher support by the end of this Guided Practice.

Objective #3 (10th grade biology): *SWBAT describe the biological risks of drug use.*

Guided Practice:

Ms. Donnelly tells her students that they are now doctors. She presents a series of symptoms that patients are complaining of, and she asks students to work in pairs and write down what they believe was the cause of those symptoms, justifying their answers. They may use their charts. Ms. Donnelly bases these case studies on the handouts the students read and the film they watched. When students are done, she asks pairs to present and defend their choices in front of the class. While each pair is presenting, the rest of the class takes notes and then votes thumbs up or down if they agree with their classmates' diagnoses. One student facilitates the ensuing discussion.

Teacher's Intentions:

This activity promotes active student engagement and participation by creating a scenario where students must use inductive reasoning to solve real-world problems. By working in pairs, students get support as they practice the objective. During the whole class activity, students are still engaged in the lesson by being required to think critically about their peers' analyses.

The "Guided Practice" of Concepts

You'll notice in the third example above that students were not practicing a skill like conjugating verbs, performing a computation or writing a five-paragraph essay, but rather further developing their understanding of a concept. This issue of "practicing an idea" is an important one because, very often, teachers of content develop lessons in which students may be able to recall facts in the short run—but will not develop a rich understanding later on. David Perkins, an expert in cognition and instruction, cites the classic classroom question, "What are the causes of the U.S. Civil War?" as an example of how some teachers unwittingly equate textbook regurgitation with learning. When you think about it, this Civil War question may test whether or not students comprehended what they read, but not whether they understand the relationships between certain events and the war.

Here's where using Bloom's Taxonomy, students' own opinions, and some creativity can help. Perkins recommends asking students to name the one cause of the Civil War listed in the text that they think was most significant and why, which would spur students to reason through the ideas of the day. You could also share regional differences of opinion in the causes of the war, asking students to analyze the perspectives and strengths in argumentation of a newspaper editorial on the subject published in New Orleans versus another from New York. You might even organize a debate, with different groups of students defending the different interpretations. This is all to say that guided practice can mean pushing students to high levels of understanding in order to crystallize certain concepts and ideas in their minds.²⁰

Checking for Understanding Through Students' Practice of New Material

By now, you are undoubtedly noticing a pattern—"Checking for Understanding" is a critical component of every step of your lesson plan. While that is true, this theorem may be most true in the context of student practice of new material. Student practice gives you an opportunity to determine whether students have grasped the new material so that you know if you can move on to new skills or if you need to re-introduce the material or provide more opportunities for practice. Because of this, you should explicitly write or script checks for understanding into your lesson plan. Here are some of the key techniques you can use in gauging student comprehension.

1. **Questioning** may be the most common form of informal assessment. Most teachers find themselves constantly facilitating discourse with and among their students, asking both questions with one answer ("What comes after 'kingdom' in the classification system?") and many ("Why do we classify living things?"). In many cases, good questioning serves the dual purpose of delivering instruction and checking for understanding on that instruction. Keep in mind, however, that questioning as an assessment tool has risks. You must have systems in place to ensure that you are not checking for understanding with only a few, vocal students. The next chapter, on Instructional Methods, features more information about how to craft and use questions that can give you the information you need to assess students' mastery of the objectives.
2. **Slates.** You can quickly check your whole class' comprehension simply by giving your students tools to write down their answers and quickly hold them up to you. Some teachers use scrap paper, and others get shower board donated from their local home and garden store to create mini dry-erase boards for their students.
3. **Thumbs Up/Thumbs Down.** A teacher calls on a student to solve a mathematics problem. After the student finishes, the teacher asks the class if the student found the correct solution. The teacher asks students to respond using "Thumbs Up/Thumbs Down" (thumb up = yes, thumb flat = not sure, thumb down = no). The teacher can then quickly scan the room, getting a sense for where everyone stands relative to the skill. This method is less reliable than having every student answer the question, but it can serve as a quick thermometer reading of the class. This method is frequently misused as a form of summative assessment, so proceed with caution.

I constantly check for students' understanding of material – through journals about things we're doing in class, large and small group Q&A sessions, and individual mini-chats that last anywhere from 10 seconds to 2 minutes at students' desks. I find it imperative to check in with students individually before I can assume that everyone has mastered a concept or objective.

Carissa Dull, Houston '03
Graduate Student, English
University of Wyoming

²⁰ Perkins, David. *Smart Schools: Better Thinking and Learning for Every Child*. New York: The Free Press, 1992.

Standard Lesson Structure

4. **“Fist to Five.”** Many teachers find it helpful to have a nonverbal signal system with more gradations than a system like “thumbs up/thumbs down.” They practice with their students the “fist to five” process, by which students are told to hold up five fingers if they strongly agree, no fingers if they strongly disagree, and any number in between to show intermediate levels of agreement. This is also a useful process when you are providing students with multiple-choice answers.
5. **Sign language.** Some teachers will ask students to sign the first letter of the answer to a oral multiple-choice question. Not only do students on almost any level love to learn the alphabet in sign language, but once your students know the alphabet you have opened up a whole world of possibilities for nonverbal, immediate checking for understanding. This is a means of getting every single student in the room involved in answering each question. (Just beware that your students really know their Sign Language before using this regularly; otherwise, you will not know if your students are unsure about your objective, or if they are simply making a Sign Language mistake.) Many elementary teachers find this to be an excellent way to teach spelling, as well. There is a **Guide to the American Sign Language Alphabet** in the Toolkit (p. 62). ✕

I relied on “thumbs up” checks for understanding too much. I soon realized that students would give me a “thumbs up” even if they didn’t get it. That was not good. I began to use dry erase boards and checks for understanding where students had to actually SHOW me their work.

LesLee Bickford, Philadelphia '03
Director of Learning & Development,
Recruitment
Teach For America
6. **Signal cards.** Some teachers use analogous systems that utilize different colored or labeled (e.g., “yes” and “no”) note cards. It becomes second nature for students to hold up a note card to answer each question. After introducing new material, a quick “true/false” showdown can help you gauge if students are grasping your objective.
7. **Observations and anecdotal records.** A subtler form of formative assessment, teachers who determine one or two variables to observe (a specific skill, work habits at a learning center) and track student strengths and weaknesses with a clipboard or notebook.

Student practice can be an excellent time to collect information on where both individual students and the class as a whole stand against an objective. Developing methods to ensure constant student participation also keeps everyone engaged and thinking about the lesson, rather than being idle.

IV. Independent Practice

The Independent Practice phase occurs when students refine their skills, without teacher assistance, and can be the time when students demonstrate their understanding of the objective through completing a formative assessment. If a friend had showed you how to ride a bike (Introduction to New Material) and then held it steady as you pedaled (Guided Practice), now is the time for you to ride on your own. Independent Practice may involve solving problems, answering questions, demonstrating a skill, completing a “performance task” (an experiment, role-play, debate, report, song, poem, skit, project) or applying the knowledge in some new way (such as developing a new analogy or metaphor) to demonstrate mastery. By the end of Independent Practice, students should be able to achieve the objective that you set at the beginning of the period. For students who easily achieve the objective or for those who continue to struggle, extension activities and homework assignments are two ways to get students to further engage with the material they learned. If you use Independent Practice as your way of assessing mastery of the objective, then you should begin planning at this step (after first developing your vision for

student learning). As mentioned in the introduction to this chapter, lesson planning, like all planning, should start at the end – with the outcome or goal you want students to achieve. Keeping this in mind, here are the key guidelines for an effective independent practice:

- **Be clear about and model behavioral expectations.** Just like the other phases of the lesson plan cycle, it is crucial to specify exactly how you want students to behave.
- **The activity should focus on the achievement of the objective.** By the time you have reached the Independent Practice of your lesson, your students should be performing on the rung of Bloom's Taxonomy stated in your objective. If your objective states that, by the end of the lesson, students should be able to label the 50 states on a map, the Independent Practice should ask students to do just that. Having students sing a song about the 50 states may be fun, but a student has not mastered the intended objective by virtue of performing it (unless, of course, the corresponding choreography has students pointing to each state on an unlabeled map as they sing).

A related pitfall occurs when activities give students an unintended focus. If an objective requires students to describe the California Gold Rush's effect on migration, having students make a sugar-cube model of Sutter's Mill forces students to concentrate on gluing a structure together, rather than developing an understanding of America's expansion. Sometimes, teachers will plan out Independent Practice activities that focus on the objective but require several days to complete. You will want to weigh the importance of completing certain projects with the urgency of meeting your objectives.

Lastly, just like in guided practice, make sure that your activity aligns with **all parts** of the objective. If your objective includes more than one part, then your practice should cover the entire objective, not just one section. For example, if the objective is to outline the main events of the California Gold Rush **and** describe its effect on migration, the assessment should require students to do both actions (outline events and describe the effect). Only having students produce a timeline of the Gold Rush would not tell you whether students have mastered the second part of the objective.

In order to check for ALL students' understanding, I spent a lot of time during independent practice walking around the room with a clipboard to find out which students were demonstrating mastery and which were not. I would take notes on students' work, ask them to explain how they were approaching the work and why, and reteach individuals or small groups as needed.

Jane Henzerling, Phoenix '98
Director of Advancement, Real Art Ways

- **All students should have to master the skill or knowledge independently.** Not only should the activity reflect achievement of the entire objective, but every student should be responsible for demonstrating mastery. Often teachers will plan group activities that assign roles to different students for different tasks. There are legitimate reasons for doing so, but by the end of the lesson, every student should have completed a task or series of questions that measures his or her level of achievement on the lesson objective. Only by doing this will you be able to know whether all students truly understand or are able to do what the objective requires. The teacher may collect the Independent Practice and provide feedback on it.

Like guided practice, your independent practice should give students multiple opportunities to demonstrate their understanding. Include more than one example or problem in your practice, especially if it serves as your formative assessment. This will provide you with a more complete view of whether your students truly have mastered the material.

Standard Lesson Structure

- **Provide opportunity for extension.** Students work at different paces. Preparing extra opportunities for students to go beyond the intended objective – finding analytic, creative or practical applications for the material – will be excellent practice and serve to allow students to discover deeper meaning to their learning. Planning homework in addition to, not instead of, Independent Practice will also allow students to retain and extend their newly gained knowledge. You will find suggestions to frequently asked questions about homework later in this section.

Three Examples of Independent Practice

Notice how these examples of Independent Practice focus on allowing each student to demonstrate their mastery of the objective, clearly state expectations, and provide an opportunity for extension.

Objective #1 (Elementary ESL): *Students will be able to use regular comparatives correctly in an oral presentation.*

Independent Practice:

On their own, students are to think of two famous people and develop five different comparisons between them. These comparisons must include adjectives that have a variety of syllables. For homework, students are to prepare a brief presentation on their celebrities (they can bring in pictures, to provide a visual reference for the comparison), explaining how they used the comparatives correctly by referring to the syllable rules. As an extension, students can complete a journal activity that asks them if they enjoy being compared to others.

Teacher's Intentions:

This assignment incorporates student interests with the achievement of the objective, asking every student to use regular comparatives correctly. The teacher thought through the assignment and realized that students could choose very simple adjectives and therefore added the stipulation about a variety of syllables. Ms. Cate also taps into the evaluative cognitive domain by asking students to weigh the pros and cons of comparison.

Objective #2 (6th grade): *SWBAT write a bibliographic entry for a book.*

Independent Practice:

Students are to trade reading books with a neighbor, find the appropriate information and write the bibliographic entry for that book on the bottom of their page. They are then to check their answers with their neighbor. For homework, students are to make a bibliography of half of the books they are using for their upcoming research project, making sure to put the books in alphabetical order by author's last name. Ms. Cartwright also provides a guide for making bibliography entries with magazine articles for those who completed research using periodicals.

Teacher's Intentions:

By this point in the lesson, students are locating and recording bibliographic entries on their own, therefore achieving the objective. Students can verify their accuracy with their neighbor, who had already written down the bibliographic entry for the book during the Guided Practice. This activity has extension possibilities through a varied and more complex task that is relevant to a larger assignment that students are working on: their research project.

Objective #3 (10th grade biology): *SWBAT describe the biological risks of drug use.*

Independent Practice:

Students are to create "Say No to Drugs" posters, with a series of pictures depicting the gradual debilitation of three different bodily organs through smoking, alcohol or drugs. Ms. Donnelly distributes a rubric, noting that students will be evaluated by the extent to which they detail the biological processes at work. Students may begin their posters during class, but they are to finish them for homework. As an extension, students can strategize where the class could hang these posters for maximum effect.

Teacher's Intentions:

The creation of a poster that describes the biological risks of drug use is an achievement of the objective. The teacher ensures that students focus on the substance, rather than the style, of the poster by providing a rubric for the assignment. Ms. Donnelly plans a practical extension to the assignment by asking students to consider the most effective forum for persuading peers to "just say no."

The Bottom Line – Reaching the Objective

While there are many ways to structure and approach the Independent Practice, the main focus should be on having students demonstrate their mastery of the objective. By being clear about behavioral expectations, focusing activities on the objective, ensuring that all students are participating, and providing opportunity for extension and extra practice, your students will be much more likely to achieve your goals for them.

Effective Lesson Timing

As you plan your lesson, it is extremely important to reflect on the time you allot for each step of lesson cycle. Without carefully planning your lesson pacing your class will be less likely to meet the lesson's objective. At a basic level, your pacing should allow your class to complete all parts of the lesson in the time available. To be truly effective, however, your lesson pacing should **support student learning**. Again, this means that you should allot the majority of instructional time to the activities that best promote student mastery of the objective. As previously discussed, practice is the most important part of a lesson for allowing students to internalize and master the key points. Therefore, effective lessons almost always allocate the most time to guided and independent practice—the place where students demonstrate and further develop their understanding of what you are teaching.

While this previous point may seem obvious, many new teachers actually struggle to include the appropriate amount of practice in their lessons. Instead, they often schedule, and then spend, too much time engaging students and presenting new material and fail to get to all parts of their guided and independent practice. This common error does not support student learning because students are not given enough opportunity to develop their understanding with teacher support and demonstrate what they know and what they need help with. While the Opening and Introduction to New Material sections are clearly important, **they should not come at the expense of practice and assessment**. Make sure that your lesson plan prioritizes what is most important by scheduling ample time for guided and independent practice.

You will notice that the **Five Step Lesson Plan Framework** in the Toolkit (p. 52) ✕ has space for you to write how many minutes each section of your lesson should take. Don't forget to write in your time estimates as you plan and think about what lesson pacing will best support student learning.

In addition to having pacing that supports student learning, the best lessons also allow for flexible adjustments to be made during the execution of the lesson. This means that, when possible, your plans should allow space for re-teaching material if you see that some students are struggling, and conversely, extending the lesson content for students who quickly master the objective and need something more challenging. Creating a lesson with pacing that allows for real-time adjustments is an advanced skill and can be difficult, especially for new teachers. Just remember that you should think about what to do if your instruction is not meeting the needs for all of your students.

Knowing When You Can and Cannot Move On

When you are finishing up an independent activity or assessing student understanding, you will likely find one of several things:

- **You've run out of time.** That bell can sneak up on you. Avoid this at all costs by choosing manageable objectives, giving students ample time for practice, using a stopwatch to keep your class on task, and even scheduling in a moment for questions and announcements after your lesson closing. Yet if you find time running short – don't press on. It is better to know that your class has made measurable progress toward a less rigorous objective than rushing to finish, simply to say you've "covered" material. Naturally, you will need to adjust your

Standard Lesson Structure

planned objective for the next day's lesson, given that you did not meet your original goal. Of course, if your students are really struggling, you may need to expand the amount of time you spend with them by meeting after school.

- **You still have a great deal of time.** If you find you have *more* time than you need in a given period, don't forget Bloom's taxonomy. Keep challenging your students and ask more complex questions. If you find yourself regularly allowing students to have "study hall" instead of using class time to move students as far as you can, step back and reflect on your lessons. You may be underestimating what your students can accomplish in a given period, or you may not be doing an adequate job of checking for understanding, when more could be necessary. Some teachers also maintain a series of "sponge activities," mind benders, riddles, and intellectual puzzles used to sop up three or four minutes left over in a period, after ensuring that their students have mastered the objective. Other teachers review the material of previous lessons to keep old objectives fresh in the minds of their students.
- **The majority of students do not yet grasp the material.** Sometimes formative assessment results tell us information we do not want to hear. Not only will we share our students' disappointment if they have not mastered certain objectives, but poor assessment results also reflect directly on our success as teachers. When a significant number of your students perform poorly on an assessment, you should evaluate to what degree this reflects your effectiveness in teaching that specific lesson. You should consider variables such as whether the assessment tool accurately measured student performance, whether you utilized effective instructional strategies, and whether students were focused on and invested in achieving the lesson objective or completing the assessment. When a few students perform poorly on an assessment or independent learning activity, and you have determined that a poorly designed assessment is not the cause, you may need to develop specific instructional strategies to re-teach those students separately.

In either scenario, you may need to step back and reflect on why the instructional strategies you implemented were not effective in ensuring that your students learned the material. Perhaps your Introduction to New Material was rushed, for instance, or you did not schedule enough time for students to engage in guided practice. In preparing to re-teach, you may first want to conduct smaller, more specific assessments to determine exactly where in the lesson the students first fell behind in order to determine how to best focus your re-teaching. In some cases, your students may generally understand the new material, but may simply need more practice. In such situations, you may want to provide students with more opportunities for guided and then independent practice.

- **The majority of your students do grasp the material.** If students *have* achieved the objective, you should proceed to the next objective in your sequence. Avoid the trap of reviewing material simply because the students are "enjoying" the topic or because you think one more "fun activity" should be included before you move on. Constantly push students towards your end goal.

What do you do if most of your students have not mastered the objective while some of your students have? This is one of the many difficult dilemmas of teaching: you need to meet the needs of both sets of students. While you are reinforcing the skills with the majority of the class, you might assign an extension project to the students who have already achieved the objective. If the majority of your students do understand the objective, but a few students do not, you also need to meet the needs of both groups.

You might arrange a time before or after school to work individually with the small group of students so that they don't get farther behind when you continue on in class with a new objective.

Teaching to a variety of student levels (known as "differentiated instruction") is an extremely challenging task. You will learn more strategies for differentiating your instruction in Chapter Eight. The mastery of this teaching technique is one that takes time, practice, reflection, and observation of experienced teachers.

Frequently Asked Questions About Homework

Beginning teachers often wonder how to deal with the question of homework. Some of the suggestions below are based on research in *Classroom Instruction that Works*.²¹

Q: Should I give any?

A: While there is no quantitative link between homework and improved test scores in elementary school, researchers recommend assigning a moderate amount of homework every night (no more than a half hour) to help young children develop study habits and foster the idea that learning needs to take place at home as well as school. Researchers did find that, by high school, the more homework students do, the better their achievement. Students of all ages should be reading at home regularly.

Q: What's an appropriate homework assignment?

A: There are two common purposes: (a) practice, (b) preparation or elaboration. When homework is assigned for practice, such as solving one-variable equations, students should already be very comfortable with the task; otherwise, students may make and reinforce errors. When homework is used to preview or extend a lesson – such as a journal entry about a reading assignment – it is often more effective to create an assignment that will allow students to explore their own interests and ideas.

Q: How do I get students to do it?

A: Explain how homework will help your students, be clear about your expectations, and get parents on board to make homework-completion a routine. Establish and communicate a homework policy that articulates the role of homework, the amount expected, the consequences for not completing homework, and the types of parental involvement you desire. Give advice to parents, such as providing a consistent, organized place to complete it, as well as a consistent schedule. When using homework for practice, have students keep track of their own speed and accuracy to see the tangible results of their efforts.

Q: Do I have to grade every homework assignment?

A: It is not necessary to grade every single homework assignment. That said, it is important to develop a system that allows students to get feedback on their work and enables you to gauge student understanding of objectives. Some teachers use the review of some homework problems as an element of their lesson opening, with students grading their own work. Other teachers write comments on homework and use a check-plus, check, check-minus system, which they use for parent conferences and report card effort grades. These teachers may have their students put their homework in a portfolio and check it regularly, rather than daily. A variation on this strategy would be to collect homework daily and examine a fraction of the problems from each child to get a snapshot of the classroom's understanding and provide a bit of feedback to everyone.

²¹ Marzano, Robert. *Classroom Instruction That Works*. Alexandria, Va.: ASCD, 2001.

Standard Lesson Structure

V. The Closing – Stressing Connections And Checking For Understanding

The last component of an effective lesson plan is the lesson closing. This final stage of your lesson (1) reinforces the lesson objective, and (2) provides an opportunity to check for student understanding. New teachers often underestimate the value of the lesson closing. Lesson closings will make your teaching more effective by crystallizing students’ understanding of each lesson’s objective and by keeping you informed of students’ progress toward your academic goals.

Unfortunately, most of us have probably not witnessed many effective lesson closings. All too often, teachers fail to reserve enough time to effectively close a lesson. Since it is easy to feel rushed or run out of time at the end of the lesson, it is crucial that you explicitly set time aside for the closure. Teachers might set a timer or ask students to remind them when to transition into the lesson closing.

An effective lesson closing does not take much time. In fact, your closing should usually take between five and ten minutes. An effective closing, at a minimum, does the following:

It’s important to mix up how you close a lesson, but to date I have found nothing that fulfills the purpose of a closing better than walking over to the objective on the board at the end of class and asking for volunteers to do exactly what it says.

Rob LoPiccolo, South Louisiana ’99
9th Grade Physical Science

- (1) Reemphasizes and clarifies the objective that the students have learned.
- (2) Reemphasizes the significance of that objective.
- (3) Assesses students’ mastery of—or progress toward—that objective (if not done earlier).

Consider the following example of how a teacher met these objectives through questioning.

What did students learn today?

Teacher: What is one specific thing that we did today?
Student A: We wrote letters.
Teacher: Yes. What type of letters specifically?
Student B: Ones where we try to convince people to do something.
Teacher: Yes, that’s a good way to put it in your own words – does anyone recall the common name for that type of letter?
Student C: Persuasive?
Teacher: Exactly!

What is the significance of what the students learned today?

Teacher: Today we expanded our understanding of different types of letters. What type of letters had we developed in the past?
Student D: Narrative.
Teacher: And why do you think it was important to expand our understanding and learn how to write persuasive letters?
Student E: Well, sometimes you write to different people, like sometimes you write to your grandparents to say hello and sometimes you write to an important person in the government.
Teacher: True, but couldn’t you write to them in the same way?
Student F: No, you need to know how to write different letters for different audiences, and sometimes you are writing to them for different reasons.

What progress did students make toward the objective?

Teacher: Take a moment to write down the characteristics of good persuasive writing that are different from the characteristics we have discussed about narrative writing. I will call on individual students to share their characteristics – listen carefully to what your classmates say. If you also wrote down that characteristic, I want you to stand up.

Closing Up the Sample Lessons

For more guidance regarding particular strategies to stress connections and check for understanding at the end of a lesson, see the **Methods for Closing a Lesson** section of the Toolkit (pp. 63-64). ✖

For now, let's refer back to our sample lessons for the final time and consider their closings in light of the points that should be covered in an effective lesson closing.

Objective #1 (Elementary ESL): *Students will be able to use regular comparatives correctly in an oral presentation.*

Closing:

Before students leave for lunch, Ms. Cate assesses each student's knowledge of the syllable and suffix rules by using five adjective flashcards and asking students to write down the proper comparative forms on an exit slip. She explains that tomorrow's lesson will feature a set of comparative adjectives that are exceptions to the rules: the words good and bad. Ms. Cate collects the exit slips as student file out.

Teacher's Intentions:

By using exit slips, the teacher is taking one final opportunity to assess and strengthen each student's mastery of the lesson objective. Ms. Cate also connects this lesson to future learning, previewing the next day's objective.

Objective #2 (6th grade): *SWBAT write a bibliographic entry for a book.*

Closing:

Ms. Cartwright asks her students to complete their daily Lesson Checkup, which includes an in-their-own-words summary of what they have learned and an explanation of why the lesson is important. The teacher reviews these Checkups regularly.

Teacher's Intentions:

The daily Lesson Checkup activity reinforces the key ideas of the lesson and further communicates its relevance. It provides a snapshot of student understanding for the teacher.

Objective #3 (10th grade biology): *SWBAT describe the biological risks of drug use.*

Closing:

Before students leave, Ms. Donnelly will ask students to write a paragraph reflection about the danger that scares them most about taking drugs.

Teacher's Intentions:

This final activity requires students to demonstrate their understanding of the objective once more. It also zeroes in on the real-world importance of the day's lesson and serves as a link between the curriculum and students' thoughts and feelings.

Standard Lesson Structure

The Importance of Assessing Student Mastery

If you haven't already administered a formative assessment of student understanding, the lesson closing needs to serve this purpose. By carefully crafting your lesson assessment, you should be able to gauge the effectiveness of a lesson and the degree to which students have achieved all parts of the objective. Remember to give your students multiple opportunities to demonstrate their understanding, if possible. Without a formative assessment of student understanding, it is entirely possible that you could transition into new material before students have a strong mastery of the current subject matter. Always administer a lesson assessment by the end of the lesson to determine what your class knows and what it needs additional help in understanding.

Conclusion and Key Concepts

Every day you will have the responsibility and opportunity to determine how best to ensure that your students are meeting the high expectations you have for them. Not every lesson will be uniquely creative, not every lesson will involve small group work, and not every lesson will involve a diverse array of activities, but every lesson should be carefully designed and implemented to ensure that your students learn, understand, and retain the skills and knowledge defined in the goals you have set. When you are planning your lessons, you must ask the following fundamental question: ***What must occur in this lesson to ensure students successfully meet the objectives in the most effective and efficient way possible?***

Consider that question as you outline the opening, as you plan the Introduction to New Material, as you think through the student practice, as you develop the lesson closing, as you integrate strategies to constantly assess students through the course of the lesson, and as you consider transitions and overall pacing of your lesson. Remember that each stage of a lesson has a specific purpose, and that a coherent and effective lesson is the result of carefully planning all parts.

To summarize, all lesson plans should be built around a student-learning-centered, measurable, and rigorous objective that you derive from standards-aligned learning goals. One of the most common, effective lesson plans has five stages:

(1) **The Lesson Opening.** The lesson opening should communicate:

- What is about to happen
- Why it is important for it to happen
- How it relates to what has been done previously
- How it is going to happen

It should also:

- Engage students and capture their interest
- Provide and model clear expectations for student behavior (if necessary).

Remember that a component of opening the lesson is assessing student understanding by asking students to summarize expectations and allowing students to ask clarifying questions.

(2) **The Introduction to New Material.** During this phase, you should:

- Emphasize and reiterate key points instead of drowning students in details
- Build in activities that allow students to “take in” the information
- Use multiple approaches, such as using different senses and different angles to get at information and make it accessible
- Be mindful of potential misunderstandings
- Make purposeful choices when making instructional delivery decisions

- (3) **The Guided Practice of New Material.** During this phase, you should:
- Be clear about and model behavioral expectations
 - Use multiple opportunities for practice
 - Scaffold practice exercises from easy to hard
 - Ensure that all students have an opportunity to practice (consider both choral responses and individual responses)
 - Monitor and correct student performance

- (4) **The Independent Practice.** During this phase, you should:
- Be clear about and model behavioral expectations
 - Ensure that the activity reflects the achievement of the objective
 - Ensure that all students can demonstrate the skill or knowledge independently
 - Provide opportunity for extension

You can choose to administer a formative assessment to determine student mastery of the objective during the Independent Practice.

- (5) **The Lesson Closing.** Your 5-10 min. closing should address the following questions:
- What did we learn today?
 - What was the significance of what we learned?
 - Can students demonstrate achievement of or progress towards the objective (if you haven't assessed them already)?

Remember to plan your lesson pacing so that it supports student learning – allocate sufficient time to guided and independent practice.

You are now familiar with the pieces of the Five Step Lesson Plan—a process for helping students acquire knowledge and skills they did not have before entering the classroom. In the next two chapters, you will learn the different strategies that can serve to introduce new material and help students practice, as well as the factors involved in choosing between these strategies.

Lesson Planning, Part Two: Instructional Methods

Chapter Six

- I. Grouping Strategies
- II. Whole Group Methods
- III. Small Group Permutations
- IV. Self-Directed Independent Work
- V. Colleagues In Class – Effectively Managing Assistants And Aides

Introduction

In the last chapter, we focused on the overall structure of a lesson plan. In this chapter, we are going to zoom into the “heart of the lesson”—the Introduction of New Material, Guided Practice, and Independent Practice—to discuss some of the particular strategies you might choose to employ.

Needless to say, this chapter can’t cover the hundreds and hundreds of instructional methods that a teacher might use. We have chosen to focus on a handful of the strategies that teachers most often use and find particularly effective: grouping strategies, demonstrations, lectures, questioning and discussion techniques, discovery learning, cooperative learning, independent work, inquiry and problem solving, and graphic organizers. We have also used this chapter to address a potential factor when considering how to deliver instruction: classroom assistants.

We will save the question of how you decide *which* instructional method to use (by weighing factors such as student needs and interests, the objective’s cognitive level, the nature of the content, and time and resources available) for the next chapter. This chapter familiarizes you with *how* each method works.

With some over-simplification, we can separate the instructional choices you make when planning each lesson into two general categories based on:

- (1) how the students are organized to engage the material, and
- (2) how the teacher delivers the material.

These two sets of variables work together to provide multiple instructional options. Consider the following table:

Student Grouping (to name a few)	X	Instructional Delivery Methods (to name a few)
Whole Class		Teacher Modeling/Demonstration
		Lecture
		Graphic Organizers
		Questioning and Discussion
		Discovery Learning
Small Group <ul style="list-style-type: none">• Heterogeneous by skill level• Homogeneous by skill level• Interest groups• Pairs or informal groups		Cooperative Learning
		Inquiry / Problem Solving
Individual		Centers
		Independent Projects

It is possible to mix and match these grouping strategies and instructional delivery methods. You might decide to put your students in a small group for a discussion, or conduct a whole class problem solving activity. It is for that reason that we will begin by giving a quick overview of each grouping strategy's main features, so you can see both the versatility and the unique usefulness of each organizational technique. Then, to give you the best sense of how the instructional delivery methods work, we will describe each one in the context of its most popular grouping configuration (whole class lecture, for example).

I. Grouping Strategies

As part of determining the best way to deliver instruction that meets the needs of all students, you will need to decide how you will group your students throughout your lesson. Effective student learning can take place in a whole group setting, in small groups, or individually—each with or without direct teacher interaction. As you are planning, you should consider what types of grouping to use at each stage of a lesson. Most lessons will include a mix of group formats.

The following tables describe the three most common grouping strategies (whole class, small groups, and individual) and give examples, tips, and pitfalls for each.

Whole class Grouping

Description	The teacher works with the entire class.	
When or why would I use this strategy?	<ul style="list-style-type: none"> To present new information or review information with the entire class efficiently. To gain an overall sense of what skills and knowledge students are bringing to a particular lesson objective. 	<ul style="list-style-type: none"> To summarize or introduce a learning experience. To incorporate the diverse perspectives of the entire class. To facilitate a teacher-led demonstration. To be able to quickly check for understanding across the whole class.

Examples	<ul style="list-style-type: none"> Lecture presenting new material. Lesson Opening or Closing. 	<ul style="list-style-type: none"> Questioning and whole group discussion. Demonstration or modeling.
Useful Tips and Common Pitfalls	<ul style="list-style-type: none"> Whole group instruction may be the easiest grouping strategy to manage, because the teacher is often in control and students are accustomed to the expectations of a teacher-led experience. At the same time, it is much more difficult to individualize instruction and address varied student needs in this format. Students may initially be wary of sharing answers in front of the whole group, especially in discussions where there is no right or wrong answer. A classroom culture that establishes a safe environment helps alleviate this fear. Also be aware not to let one or two vocal students dominate your attention. 	<ul style="list-style-type: none"> Students can get bored or off-task because they can more easily disengage in a large group setting. You need to ensure in your planning that it is clear at each moment what students are supposed to be doing. Are they supposed to be taking notes with the help of a graphic organizer? How much time have you reserved for questioning? English language learners or students with learning disabilities may need additional explanation or time with you to grasp material presented to the whole group in lecture form. You might want to set up conferences with such students, or assign them a buddy who can share their notes to fill in gaps.

Instructional Methods

Small Groups

Description	The teacher works with one small group of students. The rest of the class may be working either individually or in other small groups.	
When or why would I use this strategy?	<ul style="list-style-type: none"> To work closely with a small group of students on particular skills. To address different academic levels within the class. To address varied student interests. 	<ul style="list-style-type: none"> To enable student collaboration to achieve a common learning objective. To expose students to a variety of perspectives.
Examples	<ul style="list-style-type: none"> Cooperative groups, partner work 	
Useful Tips and Common Pitfalls	<ul style="list-style-type: none"> Effective cooperative learning requires much more than placing students in groups and encouraging collaboration. Students must be taught how to work effectively with peers - listening to each other, monitoring each other's behavior to ensure they remain on task, and maximizing each other's talents and contributions. Teaching, modeling, and planning for effective cooperative learning is the teacher's responsibility. 	<ul style="list-style-type: none"> When one small group is with the teacher, other students - whether they are working individually or in small groups - must have clear expectations for productive activities they can complete without teacher guidance. Cooperative learning tends to take more time, and the potential for students to veer away from the specific learning objective is increased. Small groups can make it more difficult for the teacher to ensure that each individual student has mastered the objective. That is, group output may actually reflect only one student's learning.

A "Group" of One: Independent Work

Description	All students work independently on an assignment, or the teacher works with one child while other students are working independently.	
When or why would I use this strategy?	<ul style="list-style-type: none"> To work with a particular student on a learning objective specific to him or her - from an IEP or otherwise. 	<ul style="list-style-type: none"> To allow students to progress at their own pace on a class-wide learning objective. To allow the teacher the opportunity to observe individual student progress.
Examples	<ul style="list-style-type: none"> Independent journal writing. Silent sustained reading (SSR) during which everyone, including the teacher, reads a book of his or her choice. Individual student practice of various skills (math, science, etc.). 	<ul style="list-style-type: none"> The "workshop method" is an approach in which students complete assignments at their own pace and turn to the teacher for instruction, help, and feedback. Student and teacher agree on the pace ahead of time. The teacher then customizes instruction for each student. This method is used frequently in writing classes, where constant revision of long-term projects is often central to the curriculum.
Useful Tips and Common Pitfalls	<ul style="list-style-type: none"> If all students are working independently, the work must not only contribute to a student's progress towards goals but also require minimal supervision. In order for students to be successful in this model, they need to learn skills for how to behave and work effectively on their own. Very young children have short attention spans and are unlikely to be able to work individually for long periods of time without teacher guidance. 	<ul style="list-style-type: none"> Strategies for helping students work independently include: establishing a regular (and therefore predictable) routine; posting written directions for easy referral during an independent activity; appointing students to field questions while the teacher is holding meetings, or instructing students to write down questions to ask the teacher later; and maintaining a weekly list of enrichment or review activities for when a student is finished with independent work and the teacher is working with someone else.

We will discuss the question of selecting the best grouping strategy in the next chapter, when we consider the needs and interests of students, the cognitive level of the objective, the nature of the content, and the time and resources available. As the instructional leader, you must ask yourself which grouping strategy will enable each student to move forward most quickly toward your objective.

Now that you know the various grouping combinations, we will move on to detail the most common instructional delivery options under each configuration.

II. Whole Group Methods

Modeling / Demonstration

Demonstration is one of the most common instructional methods across the grade levels. Kindergarten teachers model how to form letters of the alphabet. Chemistry teachers show students how to balance equations. If the objective is: "Students will be able to dissect a frog," the teacher should bust out the scalpel and a specimen and perform a sample incision. Similarly, if students are expected to know how to pick out library books independently, the teacher will want to outline the key steps for doing so, take the class to the library, and model those key steps. It goes without saying that demonstrations must be planned and executed well if students are to learn the skill they are expected to master.

For demonstrations, teachers should:

- direct student attention to fundamental elements of proper procedure through (a) holding up an object or pointing to where you want students to focus, (b) breaking processes into clear and numbered steps, (c) performing each action with narration ("now I am checking to make sure I am using the metric side of my ruler"), and exaggerated motions, if applicable,
- prepare visual or tactile aids for students to see or experience your demonstration clearly,
- explain new concepts or terms ahead of time, or else students will not be able to follow your demonstration, and
- highlight common errors for students to avoid.
- narrate your behaviors by explaining to students what you are doing and thinking at every step of your demonstration

For example, one fourth-grade class goes to the library every week to select new silent reading books. In a lesson on making good literary choices, the teacher points out that some students make the mistake of literally judging new books by their covers and fail to skim the text before checking them out from the library, realizing too late that the books are inappropriate or uninteresting. She explains four steps to avoid this problem: looking at the Student Book Reviews binder for recommendations; considering other books by a favorite author; doing a search of favorite topics in the card catalog; and reading one page of a potential choice and making sure there aren't more than five unfamiliar words. As the students write down the steps, she goes through this process herself. After this Introduction to New Material, Guided Practice and Independent Practice can follow, with students gradually taking over the demonstration of the skill.

Instructional Methods

Lecture

If a demonstration covers skills, teachers will often use a **lecture** to reach knowledge-based objectives. Perhaps the most traditional form of instruction, lectures conjure up the image of a stodgy professor droning on and on while his students doodle or even sleep to escape the monotony.

However, lecture is often the most efficient way to present or review material with the entire class. Teachers choose to lecture when they have a limited amount of time, when the background information is not available or easily accessible to students (e.g., the material is not in print), or when the concepts could be best clarified through verbal explanation. Of course, lecture works best for older students, as younger students may not be able to absorb information for long periods of time.

There are some drawbacks to using lectures as an instructional tool; namely most “lectures” – as they are most commonly delivered – do not allow frequent interaction between students and the teacher. This disadvantage can be overcome, however, by leaving time at the end for whole-class discussion.

If you determine that a lecture is the most efficient and effective instructional tool, here are some guidelines to delivering the information:²²

- **Determine the style of your lecture**, whether it’s a...
 - Classical lecture, which works well when you simply want to transmit information;
 - Problem-centered lecture, where you offer solutions to a problem with advantages and disadvantages;
 - Sequential lecture, where you promote understanding of a subject by giving an extended argument or chain of reasoning that leads to a conclusion;
 - Comparative lecture, where you draw comparisons between new and familiar information; or
 - Thesis lecture, where you make and justify an argument or assertion.
- **Focus on reaching clear outcomes.** What are your objectives? Write down and tell the students what you want them to walk away with.
- **Organize the lecture for your students.** Make it easier to take notes by providing students with graphic organizers (more on this later in the chapter) or outlines at the beginning of your lecture. You can also put a brief outline of the lecture on the blackboard or overhead transparency.

I always thought that lecturing was most useful when I was constantly assessing along the way and involving students as much as possible instead of just blabbing. You have to find ways to make sure they’re with you during a lecture—something more than just “Great! They are all looking at me! They get it!” You’ve got to incorporate questions, encourage students to think about what you’re saying and to predict where you might be headed. Stop to have students share a thought with their neighbor about what they just heard, or ask students to summarize the lecture or bring up points that are confusing. There are many ways you can engage students in your lecture, but it takes some planning up front.

Jessica Kaufman, Houston ‘99
Director of Alumni Communications
Teach For America

²² Some of this information has been modified from *Lecturing with Style*, Grayson H. Walker Teaching Resource Center, The University of Tennessee at Chattanooga. <http://www.utc.edu> accessed 1/31/07.

- **Establish ground rules.** Are questions in the middle okay, or should students wait until the end? If you don't want students to interrupt you, you need to teach them to write down their questions so you can address them at the end of the lecture.
- **Make modifications for visual learners.** Synchronize slides (or overheads) to go with your verbal presentation. Select graphics that represent the ideas, concepts or words.
- **Follow the basic strategies for effective oral presentations:**
 - Use *visual cues*, such as props, slides, handouts, keywords on the board, diagrams, or pictures.
 - Use *vocal cues*, such as adjusting the volume of your voice and taking advantage of pauses.
 - Use *signal phrases*, like noting that you will be talking about *six* techniques for writing a great essay opening, which will help them anticipate what you will be saying.
 - Tap into the *drama, intrigue and relevance* of your subject by telling a human-impact story, sharing a personal anecdote, or citing local examples.
 - Use *body language*, such as gesticulating wildly when talking about a tornado, or crouching down when talking about predators and prey.
 - Avoid *vagueness* or *indecisive, halting speech*, such as "This chemistry lesson *might* help you understand *a little bit more* about *what is often called* a physical change, *no*, a physical reaction...*well*, both terms could *actually* work *in this instance*. *Maybe* before we get to what is *perhaps* the main point of the lesson..."
 - Be aware of your *non-verbal behavior*, such as fidgeting and pacing, which can be distracting.
 - Make *eye contact* and be *enthusiastic*, sharing why this subject interests you.
- **End your lecture clearly.** Summarize and highlight the main points. Conclude with the key ideas and how they relate to the future. What should students do with the information from today? Then invite questions and ask questions of students.

Graphic Organizers

A flow chart, a time line, a family tree – these are all graphic organizers, which combine words and phrases with symbols to visually represent connections between various pieces of information or ideas, thereby helping students to process information. These tools can come in handy during the Introduction of New Material, when you can refer to a completed graphic organizer to help students visualize the connections among the concepts they are learning. During Guided or Independent Practice, students can complete or create their own graphic organizers to apply the

Graphic organizers are so effective in my classroom. Not only do they keep my students organized, but they also keep my lessons organized and well-paced. They teach discipline in note-taking and keep students on task during a lesson. I use graphic organizers for taking notes in my English class – it's wonderful because it keeps my students' attention and they produce something they can refer to later.

Abigail Rossetti, Las Vegas '04
Program Director, Las Vegas Valley
Teach For America

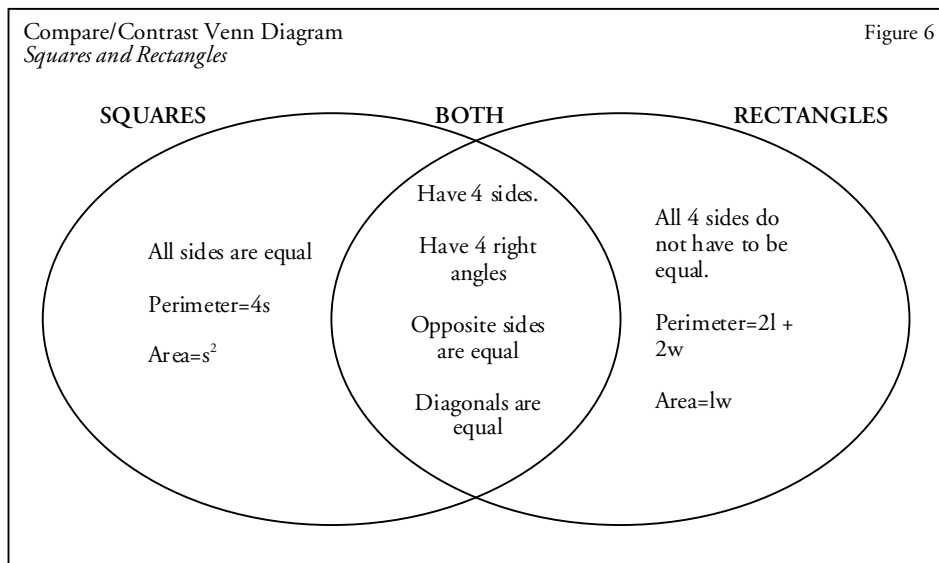
Instructional Methods

information they have learned. Graphic organizers are also an excellent way to reflect on and organize learning at the end of a lesson or unit; they are among the most versatile learning devices because they can be used in whole group, small group and individual configurations.

These tools can be especially helpful as a way for students to learn how to take notes, a skill you cannot assume students possess at the beginning of your year. You may have to show students how to separate main ideas from details, or how to abbreviate effectively. Lay out exactly how you expect students to take notes (even modeling the process with a clip of the evening news, for example), provide tips on outlining, and have students practice. Doing so will lead to more retention of the information you relay in lecture.

Below is an example of a **Venn diagram**, a commonly used graphic organizer. This particular tool allows students to compare and contrast two objects or ideas. A filled-in version of this diagram could be given to students at the beginning of a lesson, students could fill it in as the lesson progresses, or students could fill it in as a form of student practice. Asking students to identify similarities and differences between concepts is the instructional strategy with the high probability of improving student achievement, according to a recent analysis by the McREL educational laboratory.²³

A **web** – where key concepts literally sprout from a central topic, and details branch off from each concept – serves yet a different purpose: brainstorming new ideas. Be sure to look at the other **Graphic Organizers** in the Toolkit (pp. 65-68). ✂ Show these different kinds of graphic organizers to your class and explain their purposes. Then have students practice selecting the appropriate choice for a particular task.



For other ways to encourage the retention of material in your class, see the sections on **Analogies**, **Brainstorming**, and **KWL Charts** in the Toolkit (pp. 69-71). ✂

²³ Marzano, Robert. *Classroom Instruction that Works*. Alexandria, VA: ASCD, 2001, 22-25.

Questions and Discussion— A Fundamental Instructional Tool

Reflect for a moment on the questions you ask and are asked on a daily basis. “What time do we have to be at the bus tomorrow morning?” “Where can I get some information and tips about grant writing?” “Why is it important to create a long term plan?” “Which student has posed the greatest challenge for you, and how are you going to move that student to achieve academic gains?” These questions can be categorized according to two purposes for asking a question:

a) Questions are asked to gain information.

- “What time do we have to be at the bus tomorrow morning?”
- “Where can I get some information and tips about grant writing?”

b) Questions are asked to stimulate thought.

- “Why is it important to create a long term plan?”
- “Which student has posed the greatest challenge for you, and how are you going to move that student to achieve academic gains?”

As a teacher, you will often ask questions to gain information – information about what students do and do not yet understand. Questioning is a specific method of assessment that can be used every day to measure student understanding and gauge the effectiveness of your lesson.

Questions should also be asked to stimulate student thought. This type of questioning is a fundamental and powerful instructional tool. Don’t think that using questions to lead students to deep understanding is reserved for stodgy law professors and long-dead philosophers; questions and discussions are instructional methods that can be used at all ages and in all content areas.

In his extensive survey of pedagogical research, Jere Brophy found that questions-based discourse was one of the most common and most powerful tools for introducing new material and checking for students’ understanding:

Besides presenting information and modeling skills application, effective teachers structure a great deal of content-based discourse. They use questions to stimulate students to process and reflect on content, recognize relationships among (and implications of) its key ideas, think critically about content, and use it in problem solving, decision-making, or other higher-order applications. Such discourse should not be limited to factual review or recitation (featuring rapid pacing and short answers to miscellaneous questions), but instead should feature sustained and thoughtful development of key ideas.²⁴

Brophy goes on to describe how this technique often plays out in successful classrooms:

Thoughtful discourse features sustained examination of a small number of related topics, in which students are invited to develop explanations, make predictions, debate alternative approaches to problems, or otherwise consider the content’s implications or applications. The teacher presses students to clarify or justify their assertions, rather than accepting them indiscriminately. In addition to providing feedback, the teacher encourages students to explain or elaborate on their answers or to comment on classmates’ answers. Frequently, discourse that begins in a question-and-answer

²⁴ Brophy, Jere. “Generic Aspects of Effective Teaching.” *Tomorrow’s Teachers*, ed. Margaret C. Wang and Herbert J. Walburg. Richmond, CA: McCutchen Publishing Corporation, 2001, p. 25.

Instructional Methods

format evolves into an exchange of view in which students respond to one another as well as to the teacher and react to statements as well as questions.²⁵

You will undoubtedly find yourself using question-based discourse extensively in the classroom. In many ways, it is the most natural method of engaging students in new material. However, while all of us have been asking and exchanging questions all of our lives, effective questioning in class is not easy. Asking truly effective questions is a complex skill. By developing effective questioning techniques, you will develop your ability to engage students in meaningful discussion and to gather accurate information about student understanding and achievement of learning objectives.

Choosing the Type of Question(s) to Ask

There are numerous approaches to classifying questions; for our purposes we are going to use four categories: managerial, rhetorical, closed, and open. The following table defines each question type and provides examples.

Type	Examples	Question Function
Managerial	<ul style="list-style-type: none">• “Who needs more time?”• “What is the first step of the lab?”• “What do we do when we get to the next center?”	To keep classroom operations moving toward a desired goal; to ensure students have understood procedures and behavior expectations.
Rhetorical	<ul style="list-style-type: none">• “The letter ‘A’ is a vowel, right?”• “Yesterday we talked about the difference between a virus and bacteria; does everyone remember?”	To emphasize a point; to reinforce an idea or statement.
Closed	<ul style="list-style-type: none">• “Who were the first three presidents?”• “What is the least common denominator of these fractions?”• “What is one way heat moves between objects?”	To check the retention of previously learned information; to focus thinking on a particular point.
Open	<ul style="list-style-type: none">• “What would life be like if we were all the same color?”• “Given what we know about gravity on the moon, how do you think basketball would be different if played there?”• “Why do quadratic equations result in curves?”	To promote discussion or student interaction; to stimulate student thinking; to allow freedom to hypothesize, speculate, and share ideas.

The Danger of Excessive Rhetorical Questions

As each question type has a different function and elicits different responses, you should think about the questions you are going to ask before you teach the lesson. Managerial and rhetorical questions are always going to be present in lessons; managerial questions are necessary to keep the classroom running efficiently, and rhetorical questions allow you to emphasize a point without stopping to elicit student responses.

We strongly encourage you to watch out for your overuse of rhetorical questions. We have seen many beginner teachers substitute true checks for understanding with questions like, “Does everyone get it?” These do not yield accurate responses and are flimsy formative assessments. Students might nod and look as though they’ve “gotten it,” but how can you be sure? Never assume that your students will stop a lesson and say, “I don’t understand.” You must actively use questioning techniques to make sure your students are actually progressing.

²⁵ Ibid, p. 26.

The Time for Closed Questions

Open and closed questions are also best used in certain circumstances. If the objective for your lesson involves lower order thinking skills, then closed questions, which touch upon the thinking skills of knowledge and comprehension in Bloom's Taxonomy, are appropriate. Consider the question, "Who were the first three presidents?" This question has a finite number of "right" answers and is convergent, meaning that it limits the amount of student thinking. Students retrieve these answers from their memory and the teacher quickly assesses accuracy. Once the "right" answer has been expressed, there is no other need for student input. Closed questions, therefore, are effective when assessing specific student knowledge or comprehension. Due to their specificity, closed questions are easier to integrate into lessons than open questions. Closed questions should be used to build students up to open questions later in the lesson or unit.

The Argument for Open Questions

Open questions demand more complex thinking and should be used in lessons that require students to use higher level thinking skills. As Brophy explains,

The forms and cognitive levels of questions should be suited to instructional goals. Some primarily closed-ended and factual questions might be appropriate when teachers are assessing prior knowledge or reviewing new learning, but accomplishing the most significant instructional goals requires open-ended questions that call for students to apply, analyze, synthesize, or evaluate what they are learning. Some questions will have a range of possible correct answers, and some will invite discussion or debate (e.g., concerning the relative merits of alternative suggestions for solving problems).²⁶

When I first ask a question, I try to leave it as open-ended as possible. For example, instead of "What do we divide by to solve for x in this equation?", I would say, "How do you isolate the unknown in this equation?" If a student remains stuck (after adequate wait time – I'm still working on counting to 15 in my head before saying anything!), I would then add more detail to help. I never give up on a student and let someone else answer the question. I just keep moving back until I find common knowledge that I can use to help the student develop his/her own answer.

Kermit Cook, St. Louis '03
High School Physics

Consider the following question, "Who was the most effective of the first three presidents and why?" To answer this question, students need to have been given more information than just the names of the presidents, as they are being asked to evaluate each of the first three presidents on some criteria that determines "effectiveness." This question is "divergent." The classroom dialogue could include any number of criteria and still address the original question. Since there is not a set "right" answer, students can challenge the validity of their classmates' responses.

In sharp contrast to closed questions, open questions are most effective at stimulating student thought and encouraging classroom participation (which is not to say that closed questions do not have their place). You should make a concerted effort to include open questions during instruction, as they promote the type of thinking that encourages high academic achievement. You should note, however, that open questions should be carefully crafted so that they do not lead to confusion or tangential discussions. You should also anticipate the fact that open questions take longer to discuss, and keep that in consideration when developing your lesson plan.

²⁶ Ibid.

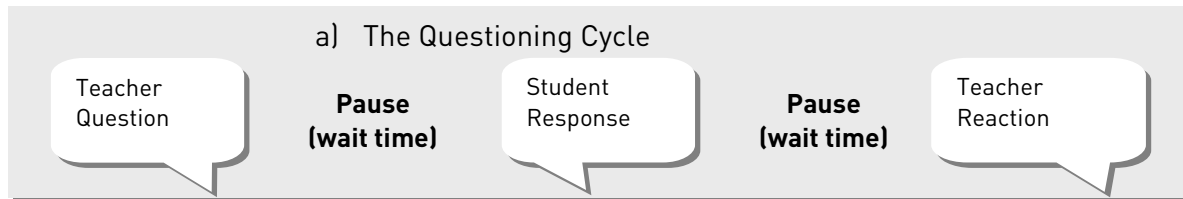
Instructional Methods

Given the close alignment between effective questioning techniques and the cognitive level of your objective for your students, be sure to take some time to review **Bloom's Taxonomy** and **How to Write Higher and Lower Order Questions** in the Toolkit (pp. 72-73). ✖

Asking Questions Effectively

Knowing what questions to ask is only half the battle. You will also need to carefully consider how you ask the questions. You'll want to be sure you are giving your students enough time to process the question and that you're challenging *all* of your students to think.

A key piece of this process is the questioning cycle, which encourages student participation and thinking. This cycle depends upon what we call "wait time," which is the time between asking a question and selecting a student to answer. This practice reserves time for student thinking, enhancing the quality of student response and increasing the number of students who are likely to engage in considering a response. In order to ensure adequate wait-time, many teachers actually count to five silently before they ask for a response.



Academic research supports the notion of "wait time," and warns that many teachers neglect to provide students an opportunity to think about their answers, thereby missing a key learning opportunity:

After posing a question, teachers need to pause to allow students time to process the question and at least begin to formulate their responses, especially if the question is complicated or demands a high cognitive level of response. Research by many different investigators has shown that teachers often undercut the potential pedagogical value of their questions by calling on students to respond too quickly (often pausing less than a second after completing the question).²⁷

For many of my questions, I would have students write their answer in their journals. I gave them all a minute to think about it and write before calling on anyone. This made it so everyone was prepared with an answer if I called on them and it avoided the annoying "I don't know" response. I also made sure to call on a few students before discussing the merits of each answer. This way, students did not shut down if they wrote down something different from the right answer and it got a range of thinking on the table.

Greg Wong, Delta '99
Law Student
University of Washington School of Law

The next step is to ask questions that encourage all students, rather than one or two individuals, to think and engage in the material. One simple but highly effective strategy for accomplishing this is to place the student's name at the end of the question, rather than the beginning, ensuring that the rest of the students don't tune out as soon as they realize they are not going to be called on.

²⁷ Ibid, p. 8.

Your Aim	Example	Explanation
Encouraging ALL students to think	"What is the difference between nouns and verbs ...(wait time) ... Samuel?"	When you ask the question in this way, most students will think of the answer in anticipation of your calling on them. When they hear Samuel's response, they may want to expand upon or challenge his answer as they have already formulated their own.
Encouraging ONE student to think	"Samuel, what is the difference between nouns and verbs...(wait time)?"	When you ask the question in this way, Samuel is the only person who is prompted to truly prepare to give the answer. Most other students will tune out and wait to hear Samuel's response rather than think of their own answer.

There may be occasions when students are shy to answer your questions, fearful of their abilities to give correct answers. Give these children ample time to respond, and consider helping them answer a more complex question (why Chicago became a major transportation hub) by starting on lower levels of Bloom's Taxonomy (where Chicago is located, how goods travel) and then working up.

On the other hand, you may find that some students respond more to questions than others. A common factor that leads to this uneven response is the amount of eye contact that a teacher makes with different parts of the room. Students who are on the outskirts of a teacher's zone of vision tend to receive fewer verbal and non-verbal cues, making them less likely to volunteer for questions and less likely to be noticed when they do raise their hands. To ensure that the same students are not always responding orally, you may want to implement a system of random selection of students, rather than relying on volunteers. Here is a quick list of closely related methods to ensure equitable student selection:

1. **Note cards.** Write each student's name on an individual 3x5 index card. Compile all the cards in one stack. When selecting students read the name on top of the stack then turn to the next card.
2. **Seating Chart.** Have a clipboard with the classroom seating chart. Each time you ask a question, make a mark next to the name of the student whom you asked. Check to see if each student has been asked a question before you ask a second.
3. **Popsicle sticks.** Write each student's name on a tongue depressor or Popsicle stick. Place all of the depressors in a jar. When you are ready to select a student, randomly pull one depressor.

You should also consider whether there are demographic trends among who is called upon to answer questions. It is helpful to have an observer track your questioning habits. With collected data you can determine if you are questioning students differently based upon gender, race, behavior, classroom location, or any other factor. For a pre-made tool for this express purpose, check out the reflection forms, Classroom Observation Tool / Tracking Questioning Techniques, in the *Teaching as Leadership* Toolkit. ✖ Again, the random methods above can help ensure fairness.

To ensure that all students participated in my lessons, I would have everyone write down the answers to my questions before I called on someone, and I could scan these answers as I was moving about the room.

Allison Rogovin, Houston '95
Managing Director of Recruitment
Operations, Teach For America

Additionally, you will want to **establish procedures** for answering questions ahead of time. Without consistently enforcing rules like "only raised hands get called on" or establishing a policy where teachers

Instructional Methods

call on students at random, students will simply shout out, eliminating your control of whose understanding you wish to assess at a given moment.

The final step in asking questions effectively is determining how best to respond to students' answers. Sometimes it is appropriate to respond to the student directly, either affirming their answer or gently pointing out the problem with their response. Researcher and author Kenneth Chuska offers a series of ways to ask effective, higher-order follow-up questions, depending on a student's response²⁸:

- **Clarify student responses.** Often, students will offer answers without fully explaining how they arrived at their response. Enable students to be conscious of the importance of precision and the nuance of language and meaning with questions like, "What do you mean by that? How are you defining that term? What might be another way we could use to describe that?"
- **Ask for validation and evidence.** When students supply a faulty conclusion, instead of correcting them, try asking questions like, "Where did you get that information?" or "What support do you have for that?" to guide students to their own understanding. This line of questioning is also appropriate for students who have provided correct answers but have not detailed how they got there.
- **Seek to broaden opinions.** If students offer their own views on an issue, guide them to see their own particular vantage point by asking, "What or who led you to feel or believe that?" You can then ask them to consider points of view by asking a question such as, "Who might disagree with you about this, and why?" or "Here are some objections I have heard to that opinion. How would you respond to these?"
- **Encourage thinking about the implications of a student's views and conclusions.** After proving their points with data, students can still think about the meaning of their conclusion. Ask "What do you predict will happen as a result of your conclusion? What are the consequences if your conclusion is valid?"
- **Dig underneath a student's judgment.** When students make evaluative remarks about a subject (e.g., a piece of literature, a historical figure), complicate their thinking by to them. "What criteria did you use in making your judgment?" "Here are some other criteria. Would they affect your evaluation? How?"

Be aware, though, if questions in the classroom constantly resemble verbal "ping pong" between a student and the teacher—which happens when teachers respond directly to one student and then ask an entirely new question of another student. Students will not look to each other as sources of information nor will they be inclined to engage in dialogue with one another. According to research by Wilen and White, this "ping pong" method is more likely to be found in low-socioeconomic-status classrooms and in classrooms where teachers perceive their students as low achievers. Additionally, ethnographers found that students from certain cultures have difficulty responding within this pattern.²⁹ Highly effective teachers eventually "phase out" their own involvement in a discussion completely, teaching students how to take turns and respond thoughtfully to one another. In these classrooms, over time, it is the students who are asking for clarification, validation, and elaboration of their peers' ideas.

It is also important for the teacher to avoid being the sole "judge" of correct and incorrect answers.

²⁸ Chuska, Kenneth. *Improving Classroom Questions*. Bloomington, IN: Phi Delta Kappan Ed. Foundation, 1995, pp. 60-65.

²⁹ Wilen, William. *Questioning Skills for Teachers*. Washington: National Education Association, 1991, p. 25.

It can be effective to diplomatically involve the class in careful consideration of the students' answer by asking a follow up question of other students, so they build on their classmate's response, as in "Natalia, how would you respond to April's question?"

Planning Discussions

When asking questions, sometimes you are looking for a specific answer, and other times you will want to create arenas for students to benefit from each other's point of view. Creating classroom discussions can be tricky because students may be reluctant to contribute—or eager to pursue irrelevant tangents. Here are a few suggestions for making discussions productive:

- **Discuss familiar topics or matters of perspective or observation.** Students may be shy to participate in discussions at first because they believe they do not know the magic answer sought by the teacher. Encourage students to draw from their personal experiences and opinions when delving into a topic. For example, "What are some of the ways that commercials attempt to get you to buy products? What different techniques do they use to get your grandparents to buy things?"
- **Establish ground rules.** Once they get started, discussions can get heated or raucous. Be sure to explain your expectations for behavior—allowing one person to speak at a time, asking clarifying questions instead of pouncing on someone else's comment—before setting off a free-for-all. You may want to develop a system that requires everyone to get equal "air time."
- **Have an objective in mind – and stick to it.** Discussions have a tendency to drift, so be sure to take the reins and gently steer conversation back to the objective by highlighting the relevant points already made. For example, "Let's review...we were discussing the techniques that commercials use to persuade us...Margaret mentioned catchy jingles...what else?"
- **Foster well-informed dialogue.** Provide necessary background information so that your students are well-informed ahead of time. You may want to have students read a book or passage, or examine data before spouting off about a topic. In addition, have students jot down a few thoughts before beginning the conversation to allow ideas to surface and percolate, and ask clarifying questions if you do not understand what students are trying to say – or if they need to support their claims with evidence.
- **Meld personal, analytical and global perspectives in the discussion.** Because new knowledge builds on prior knowledge, students may be drawn into a dialogue by sharing their own views, or sharing information they know about a related subject. Rather than simply limiting a discussion about *The Adventures of Huckleberry Finn* to the text, ask students if they ever had to support a friend when everyone else thought he or she was wrong. Ask them, too, about the responsibilities of people who ran across runaway slaves in the nineteenth century.
- **Ask higher-order questions.** In general, it is unwise to "go fishing" during a discussion and hope that students will give the exact answer you are looking for. Use discussion to encourage divergent thinking by focusing on analysis, synthesis and evaluation. "Last month, we read a book written by O. Henry, and we have just finished one by Sir Arthur Conan Doyle. What can we learn from both authors about the art of writing suspense?"

You may find that certain students are less skilled at participating in discussions, and it is your job to create opportunities for everyone to get involved. Chuska's book, *Improving Classroom Questions*, recommends some strategies for working with reluctant students³⁰:

³⁰ Chuska, Kenneth. *Improving Classroom Questions*. Bloomington, IN: Phi Delta Kappan Ed. Foundation, 1995, p. 22.

Instructional Methods

Increasing Participation in Discussions

Reason for Reluctance	Potential strategy
Fear of failure	Break down the question into smaller parts and have different students answer different pieces. Emphasize that students are in school to learn new things. "If you knew everything already," you might say, "I'd be out of a job!"
Fear of ridicule	Before you begin regular discussions in your classroom, conduct a series of lessons on how it feels to be put down. Develop a code of conduct to prevent insults, and enforce the code strictly. To foster a team spirit, communicate when students are doing an effective job of building on one another's ideas.
Looks of confusion	Be ready to phrase your question in several ways, or provide the questions ahead of time.
Speed of questioning	When in doubt, slow down. Allow more students to think about the idea before calling on any one person.
Disinterest or apathy	Ask students to share their own beliefs, feelings or experiences with the topic. Build in "gray area" questions that are bound to spark some disagreements to get the discussion moving.

Discovery Learning

Having a discussion is one way for students to reach their own conclusions about a subject. Another strategy that allows for students to develop understanding is called discovery learning. Typically, this method is geared towards higher-level objectives and is used in helping students induce or "discover" general ideas, concepts, or definitions from specific examples. During discovery learning lessons, teachers often provide students with a common experience by presenting them with materials and encouraging them to make observations, form hypotheses, test solutions, and induce concepts. This technique is often used, for example, in science classes where students learn concepts through the experience of conducting a lab or experiment.

One type of discovery learning, called "concept attainment," is when a teacher uses a series of examples and non-examples to help students understand defining characteristics of a concept. Author Anita Woolfolk provides an excellent re-creation of this specific strategy at work in a fifth-grade classroom. Let's put on your thinking caps and discover the mystery idea:

The teacher began a lesson by saying that he had an idea in mind and wanted students to "figure out what it is." He placed two signs on a table—one said "Examples" and the other said "Non-examples." Then from a bag he removed an apple and placed it in front of the "Examples" sign. Next, he put a rock in front of the "Non-examples" sign.

He asked his students, "What do you think the idea might be?" "Things we eat" was the first suggestion. The teacher wrote "HYPOTHESES" on the board and, after a brief discussion of the meaning of "hypotheses," listed things we eat under this heading. Next he asked for other hypotheses—"living things" and "things that grow on plants" came next.

After some discussion of the differences between living things and things that grow on plants, the teacher brought out two more objects, a tomato for the "Examples" side and a carrot for the "Non-examples." Animated reconsideration of the hypotheses followed these additions and a new hypothesis—"red things"—was suggested. Throughout the discussion, the teacher asked students to explain their conclusions: "We eat carrots, but

a carrot is *not* an example, so the idea can't be things we eat." The teacher added an avocado as an example and celery as a non-example. Further examples (peach, squash, orange) and non-examples (lettuce, artichoke, potato) followed. The students eventually narrowed their hypothesis to "things with seeds in the parts you eat."

The students had "constructed" the concept of "fruit"—foods we eat with seeds in the edible parts (or, a more advanced definition, any engorged ovary, such as a pea pod, tomato, pineapple, or the edible part of the plant developed from a flower).³¹

Concept attainment allows students to "make meaning" themselves, rather than having them simply copy down a teacher's explanation. Of course, this strategy is less efficient than simply giving students a definition. Plus, you run the risk of confusing your students by failing to give them a proper sequence or spectrum of examples and non-examples. If your only exemplars of fruits were sweet, then a student might incorrectly leave the lesson thinking that a sweet potato is a fruit. To avoid these pitfalls and create effective discovery learning experiences, you need to proactively consider these unintended, negative consequences, along with your students' prerequisite knowledge and skills, when planning. Throughout the lesson, you must also provide feedback to students that will focus their attention and lead them toward achieving the objective. At the end of the lesson, confirm the concept or principle that was intended to be discovered while providing further examples or explanation. While it can be more challenging to create, when discovery learning is designed carefully, it provides a much more organic learning process and, according to some teachers, increases the likelihood that students will retain the content.

III. Small Group Permutations

Whole group strategies are great to use when presenting information to the entire class, but to ensure more student interaction and address more student needs, you may need to split up your students into smaller groups. There are countless ways to do this. You can create the groups based on a variety of factors, such as skill level or student interest. You can also vary the group's purpose – to create a final product together, to edit each other's work, to brainstorm and share ideas, or to solve a complex problem. As with any choice of grouping strategy, before you implement a particular small group approach, you should be sure that it is the most effective way to get each of your students to master the learning objective.

Perhaps the most fundamental decision in creating small groups will be whether the group is heterogeneous or homogeneous with regard to performance level. The question of heterogeneous versus homogeneous grouping is sharply contested in the education community.

Proponents of Heterogeneous Grouping argue that such grouping can benefit both the more and less advanced students. More advanced students who have grasped the material must rise to the challenge of articulating the rationale behind their results (as we all know, it is one thing to know

Challenges of Small Group Instruction

Small groups can be an excellent way to reach learning objectives; however, they can also be very challenging to implement because there are so many important social skills necessary to work effectively in a group. First, students often need to be taught how to work with peers – how to listen and speak to each other (and even the volume with which to do so), how to monitor each other's behavior to ensure they remain on task, and how to maximize each other's skills and ideas. Second, it is difficult to ensure individual student mastery when students are working together. Make sure you have an assessment for every individual at the end of a group activity to ensure that meeting objectives is a primary result of group work.

³¹ Woolfolk, Anita. *Educational Psychology*. Boston: Allyn and Bacon, 1998.

Instructional Methods

something and quite another to teach it to someone else). For less advanced students, working with peers who have already developed a stronger understanding of the concept at hand can provide opportunities to see how this new skill can be applied. Proponents of heterogeneous groups often argue that homogeneous groups further hold back students who are having trouble, and widen the disparity between students. It is true that students who are experiencing difficulty with particular subject areas or with school in general tend to be tracked into groups for which teachers have lower expectations, thus compromising the students' learning opportunities. Moreover, once tracked into a particular level, students are often not given the opportunity to move to a more advanced group.

Proponents of Homogeneous Grouping counter that heterogeneous grouping creates an education program that unfairly holds back students who could be performing at a more advanced level and discourages lower-performing students from participating. In addition, they point out that it is often easier and more efficient to teach a group of students who are generally at the same level—whatever that level may be—than it is to meet the needs of a group where students' skills vary widely.

Students have to be taught to work cooperatively. Even with my high school students, we have to practice the procedures and systems we use to work in groups. It takes a lot of work to develop smooth-running small groups in which ALL students are mastering the objectives.

Stephen Ready, RGV '92
Bilingual Resource Teacher,
Menlo Atherton HS
Sequoia Union HS District

Given these issues, educators have aimed to develop methods of teaching in homogeneous ability groups that do not have the impact of permanent tracking. Recent research suggests, for example, that homogeneous grouping is effective for beginning readers if the teacher continuously re-assesses all individual student progress and adjusts the groups accordingly. In this way, all students can progress at the fastest rate possible, and no students are permanently tracked.

The following charts describe a few common small group structures, provide guidelines for when and why to use a particular structure, give specific examples, and offer useful

tips and common pitfalls to keep in mind when implementing small groups in your classroom. These tables cover (1) heterogeneous grouping by skills level, (2) homogeneous grouping by skill level, (3) interest groups, and (4) pairs/informal groups.

Regardless of the small group strategy you choose to implement, it is important that you clearly articulate the expectations of any small group interaction; students should understand why they are working together, how they will work together, and what they need to produce in the end. Before beginning group work, some teachers have students complete a form together, explaining how they will divide responsibilities and how they will ensure teamwork. Teachers also practice how to get the attention of the class for further instructions (either through some visual or auditory cue), as well as the ways in which group members are expected to speak to one another. At the end of the activity, students may fill out an evaluation form, rating the group's productivity and brainstorming ways to be more efficient next time. For an example form on rules and evaluating teamwork, see **Guidelines for Group Work** in the Toolkit (p. 74). ✖

Heterogeneous by skill level

Description	3-6 students who represent a range of skill levels (determined by diagnostic/pre-assessment) are temporarily grouped together.	
When or why would I use this strategy?	<ul style="list-style-type: none"> This group structure is helpful when you have one skill/concept that all students need to master in the same way. 	<ul style="list-style-type: none"> Sometimes you simply will not have enough materials for all students to work individually.
Examples	<ul style="list-style-type: none"> During a unit on cells, one of your objectives is that students will be able to identify various human cells by their shape and analyze how the shape of the cell relates to its function. You have 30 students and your school has only 10 microscopes. You group each student into a low, middle, and high tier based on skill, and form groups of three by taking one student from each tier. You set up 10 stations (with a different cell slide at each) and have each group circulate around the room. The groups have one answer sheet on which they must draw a picture of the cells they observe, identify the type of cell, and relate the shape of the cell to its function. Students must rotate their roles at each station (i.e. one student will be in charge of drawing the cell, another must facilitate the discussion of what type of cell it is, and the other must lead the discussion and write down how the shape of the cell relates to its function). You circulate through the room as well, ensuring each student fulfills her role, and that the entire group is collaborating to complete the group answer sheet. 	
Useful Tips and Common Pitfalls	<ul style="list-style-type: none"> You should establish roles for all group members and perhaps even assign roles to students based on their strengths or the skills they need to improve. This will also prevent lower-performing students from being discouraged from participating and higher-performing students from doing all the work. 	<ul style="list-style-type: none"> While you may want to have a group grade that reflects the quality of work produced by the entire group, it is also important to assess individual student growth.

Homogeneous by skill level

Description	3-6 students of similar skill levels (determined by diagnostic/pre-assessment) are temporarily grouped together.	
When or why would I use this strategy?	<ul style="list-style-type: none"> This group structure allows students to be challenged at their current levels of understanding with regard to a particular learning objective. 	<ul style="list-style-type: none"> When groups are homogeneous by skill level, the teacher can easily focus instruction for each group.
Examples	<ul style="list-style-type: none"> After diagnosing the math skills of your second graders, you group them by skill for a one-week unit on patterns. All groups will be exploring numerical patterns among whole numbers. You have extension activities in place involving patterns among fractions for students who you anticipate will grasp that material quickly. 	
Useful Tips and Common Pitfalls	<ul style="list-style-type: none"> Groups that are homogeneous by skill level are commonly used in reading groups, as students can work to read books at the same grade level or develop language and literacy skills. This model can also work well with math skills. 	<ul style="list-style-type: none"> It is <i>very</i> important to frequently re-assess students and then re-adjust groups accordingly between sets of objectives or skills. Otherwise, students become “tracked,” thereby losing motivation or suffering from low expectations.

Instructional Methods

Interest groups

Description	3-6 students are grouped for a short time (one class period to several days) based on interest or learning style (determined by survey or student/teacher discussion). Interest groups will generally be heterogeneous.	
When or why would I use this strategy?	<ul style="list-style-type: none"> To motivate students by recognizing and involving their interests and learning styles in classroom activities. 	<ul style="list-style-type: none"> To use the talents and skills of each student to enhance the learning experience of other students.
Examples	<ul style="list-style-type: none"> You provide students with a list of books and short descriptions of the books' plots at the beginning of a unit on science fiction. Students are allowed to choose the book that they would like to read, and you arrange them in groups of 3-6, depending on their choice. Students work in these "book groups" during class to discuss what they read the night before and to complete a group project on the book. 	
Useful Tips and Common Pitfalls	<ul style="list-style-type: none"> In order to ensure that you are aligning their interests with the activity, you should survey students and allow them to express their interests. You should establish roles for all group members and perhaps even assign roles to students based on their strengths or on the skills that you would like them to improve. 	<ul style="list-style-type: none"> Without clear expectations and definitions of student roles, students with stronger skills may end up doing the bulk of the work. While you may want to have a group grade that reflects the quality of work produced by the entire group, it will also be necessary to assess individual student growth.

Pairs or informal groups

Description	Two students are grouped for a short time (a few minutes to one class period) in order to discuss and share their answers to specific questions, or 3-4 students are grouped for a short time to brainstorm, answer open-ended questions, or solve complex problems.	
When or why would I use this strategy?	<ul style="list-style-type: none"> Students have the opportunity to learn from their classmates' perspectives. With practice, such groups can be formed and disbanded quickly without much disruption. 	<ul style="list-style-type: none"> These quick, informal groupings—once you have practiced the procedures with your students—are useful tools for varying the pace of your lesson, adding variety to your introduction of new material and student practice. Pair activities may make students more comfortable than larger groups.
Examples	<ul style="list-style-type: none"> During your introduction to a lesson on the phases of the moon, you might ask students to think on their own about why the moon looks different at different times of the day. Instruct students to quickly form random groups of three or four to share and discuss their theory. 	
Useful Tips and Common Pitfalls	<ul style="list-style-type: none"> You should establish a routine for quickly forming pairs that will last the entire class period. See the Around the Clock Partners instructional tool (pp. 75-76). ✖ You should also have a routine for forming pairs that last only 1-5 minutes. See the Think-Pair-Share instructional tool for one approach (p. 77). ✖ 	<ul style="list-style-type: none"> A routine for quickly forming random groups of 3-4 is also necessary. Perhaps they should form groups with those seated near them, or count off to mix up the class "geographically." In groups of 3-4 there may be increased off-task behavior due to the larger number of participants and the lack of established group relationships. Groups of 3-4 allow for more complex problem solving and discussion.

Cooperative Learning Groups

Cooperative learning is more than just placing students in small groups and having them complete an activity together. There are various cooperative learning theories and structures that call for particular methods of dividing up students' responsibilities in the group, handling collective production of assignments, and reporting back to the whole group.

When a task is completed, I ask my third graders to reflect on their group and its work. It is not uncommon to see a student raise his hand after group work and say, "One thing that worked well for our group was that we talked about what we were going to write and draw before we began working."

Regan Kelly, Los Angeles '99
Literacy Coach
Los Angeles Unified School District

Cooperative learning requires students to be responsible not only for their own learning but also for the learning of all others in the group. Research has shown that students who participate in cooperative learning tend to have more mature social skills, higher test scores, greater self-esteem, fewer stereotypes of individuals of other races or ethnic groups, and a deeper understanding of the concepts and skills they are studying. "Cooperative learning also creates the potential for cognitive and metacognitive [thinking about how they are working and thinking] benefits by engaging students in discourse that requires them to make their task-related information-processing and problem-solving strategies explicit (and thus available for discussion and reflection)."³²

Generally speaking, cooperative groups should be as heterogeneous as possible, first by ability, and then by other factors such as gender, culture, and learning styles.

Successful cooperative learning groups meet the following criteria:³³

- 1. Facilitate interdependence.** Students must be dependent on each other to such an extent that one student cannot succeed unless everyone succeeds. Group goals and tasks should be designed and communicated to students so that they believe they "sink or swim" together, with each group member responsible for a unique contribution that is required for group success. To create this dynamic you might establish mutual goals and mutual rewards (e.g., if all group members achieve an 80% or higher on the test, each will receive bonus points). Because the teacher is not directly leading the group, students develop a sense of ownership and responsibility.
- 2. Instill individual and group accountability.** The group must be accountable for achieving its goals and each member must be accountable for contributing his or her share of the work. This means that the teacher needs to formally and informally assess the performance of each group member as well as the entire group by having students complete a form outlining exactly how they contributed and giving individual tests on the objectives. Groups can also be responsible for their members by taking notes and reviewing missed assignments when students are absent.

In retrospect, I think I over-relied on cooperative learning. There are some things that it's good for, but at the end of the day, each student needs to truly master the material – and too often working in groups means individual students don't get as much practice as they need if they're ultimately going to be able to do the work on their own.

Jerry Hauser, Los Angeles '90
CEO, The Management Center

³² Brophy, Jere. "Generic Aspects of Effective Teaching." *Tomorrow's Teachers*, ed. Margaret C. Wang and Herbert J. Walburg. Richmond, CA: McCutchen Publishing Corporation, 2001, p. 32.

³³ This material was adapted from (1) Johnson, D.W., R.T. Johnson, and E.J. Johnson-Holubec. *Cooperation in the Classroom*. 6th ed. Edina, MN: Interaction Book Co., 1993; and (2) Stahl, Robert J. *The Essential Elements of Cooperative Learning in the Classroom*. ERIC Digest, 1994, ERIC ED370881.

Instructional Methods

3. **Teach students the required interpersonal and small group skills.** In cooperative learning, students must be taught social skills such as compromise, encouragement, constructive criticism, leadership, decision-making, and conflict-management. Teachers often need to teach and model these skills and assign students specific roles (Praiser, Encourager of Participation, Facilitator, Checker for Understanding, etc.) to help students consciously develop these skills.
4. **Allow time for group cohesion and group reflection.** While students can stay in cooperative groups for any length of time, a period of four or more weeks allows groups to reap the social and academic benefits of cooperative learning. Cooperative groups also need to have structured time to reflect on how well they are achieving their goals and interacting together. Again, this reflection skill is something that needs to be taught and modeled.

Problem Solving / Inquiry

One way in which students of varying levels can work cooperatively and contribute to a common cause is through a problem solving activity. Inquiry problems involve the use of real-world cases to tease out essential learning for students. Typically, the teacher presents a vignette, story, or scenario related to the concept or skill under study. Through discussion, students then analyze, synthesize, and evaluate the facts or circumstances associated with the case. Inquiry problems are most effective when students can relate (cognitively or affectively) to one or more aspects of the case intimately.

The general process for problem-based learning is:

- (1) Choose a compelling case;
- (2) Define the nature of the problem (may involve illustrating the problem);
- (3) Compile relevant information (ask questions, do research);
- (4) Formulate and carry out a solution;
- (5) Have students assess their solutions and debrief their understanding in terms of the lesson objectives;
- (6) Conclude with further examination of issues, another case, or final resolution of the problem.

In one Web-based science lesson for sixth-graders, students are told that, due to several environmental disasters, the Earth is no longer habitable for humans.³⁴ Students must research the other eight planets and determine which one will best meet humanity's needs. The assignment suggests several websites to use for research purposes and requires students to write a report to the United Nations explaining their conclusion and justifying it with examples. By the end of the lesson cycle, students learn that this mission was technically impossible, given that none of the planets feature all of the features that are needed to sustain human life. In addition to learning the various facts and concepts that make Earth unique, students develop a greater sense of responsibility about the environment, given that this is the only one we've got!

Some classes even go beyond historical or hypothetical situations, and look in their own backyard for problems to solve. Imagine your science students demonstrating an interest in the neighborhood pond and pointing out a dramatic decrease in wildlife. You could design a problem-solving unit around the ecological issues of the pond. The point of learning particular knowledge and skills objectives would grow naturally out of student curiosity, not teacher mandate.

³⁴ "Moving Day: An Alternative Earth."

<http://www.geocities.com/nck12eubanksre/ritaeubanks/telefolio/solarwebquest.htm>, accessed 1/31/07.

Inquiry methods tend to engage students because they see the real-world applications of the concepts or skills that they have learned. At the same time, inquiry learning allows students to practice the process of problem solving. However, this method also may require teachers to prepare a great deal of materials, as well as ensure that all students are engaged in the process to master the intended objectives.

If these examples seem too grandiose to implement on a regular basis, note that inquiry and discovery learning can be as simple as asking students to confront an unusual quirk of your subject matter.

- One potential lesson involves presenting your class with two glasses of water. In one glass, the egg has sunk to the bottom. In the other glass, the egg is floating at the water's surface. When asked to explain what happened, the students may offer a simple explanation for the difference: one egg has more air inside, so it is lighter and thus floats. But switching the eggs from their respective glasses yields a surprising twist: the egg that had floated now sinks, and vice versa. Students would now need to change their hypotheses, eventually coming to the correct conclusion—that one glass contains salt water, which allows the egg to float.³⁵
- In order to help students discover the social elements that create prejudice, a social studies teacher might recreate the famous Jane Elliott "Blue Eyes, Brown Eyes" experiment by treating students differently based on some arbitrary physical characteristic – and debriefing the experience afterward.³⁶
- Some language arts teachers present two sentences to their students; in pairs, students must use their available resources (their textbooks, their keen wit) to determine which is the grammatically correct sentence and justify their answer. Is it "the crowd was scattered in all directions" or "the crowd were scattered in all directions"? Presto! Instant debate.

IV. Self-Directed Independent Work

As mentioned during the section on student grouping, independent work (i.e. "groups" of one) involves all students working independently on an assignment, or the teacher working with one child while others work independently. Independent work allows students to progress at their own pace on a class-wide learning objective and gives the teacher the opportunity to observe individual student progress.

In order to effectively implement independent work, students—especially young students—need to learn skills to behave and work effectively on their own. Look back at the "useful tips and common pitfalls" to independent work in Section I of this chapter for some strategies to help students work independently.

There are two main strategies for enabling students to conduct self-directed independent work: centers and projects. We will consider each in turn.

Centers

Centers are specified areas in the classroom that allow students to work at their own pace on specified activities. In order to support the individual needs of each student, centers can have permanent activities (such as the classroom library, with multi-level materials) or changing ones that support your current unit of study.

³⁵ Ormrod, Jeanne. *Educational Psychology*. Upper Saddle River, N.J.: Merrill, 2000, p. 544.

³⁶ Kral, Brigitta. "The Eyes of Jane Elliott." *Horizon*. <http://www.horizonmag.com/4/jane-elliott.asp>, accessed 1/31/07.

Instructional Methods

Centers can be used at every grade level, although they are more prevalent in the elementary classroom and are always present in the early childhood/pre-K classroom. You can develop centers for writing, reading, science, math, art, etc., but they should all perform one of three basic functions: **enrichment** (to deepen students' current understanding of content or skills), **skill development** (to introduce or practice new skills), or **exploration** (to incorporate student interest or provide opportunities for student discovery). One organizational benefit to centers is that, rather than finding the various materials and manipulatives for a given task in all corners of the room, students working on the same activity congregate at one station.

When you are creating a center, you should:

1. **Decide on the type of center.** Should it be for enrichment, skill development, or exploration?
2. **Specify the outcomes.** What is your objective for students at each center?
3. **Create center activities and instructions.** Be sure to include varied levels of work to allow students to focus on their current skill level. For example, have reading material at a range of grade-levels or math problems at various levels of complexity. You should also ensure that students are able to accomplish the work independently or with the help of peers. Make instructions extremely clear so they can focus and learn without your direct guidance.
4. **Model how to use centers.** As with any new instructional method, you will have to teach students how to use centers effectively. Discuss, model, and practice appropriate behavior while at the center and while moving between centers (if students will rotate through each center).
5. **Provide constant feedback to students.** You should review what students learned and did at each center in order to reinforce the key skills and concepts. That might involve spending a brief amount of time with each student while they are at the center or taking time at some later point to explicitly review what was learned at each center with the whole class.

The possibilities for using centers in a pre-K classroom are unlimited! Centers allow us to create purposeful learning opportunities for our students. In my preschool, we incorporate the whole range of developmental objectives into centers -- from fine motor development to language, literacy and science. Choosing interesting themes not only helps in our planning, but keeps our students engaged. For example, one of our thematic units is "Animal Action." In the dramatic play center, we create a pet store where children can count money at a play register and use notepads to write receipts. In the science center, we bring in goldfish and teach our students how to take care of them. We stock the library with books about the animals. And in the blocks center, our students build doghouses for their "pets" to sleep at night. I never underestimate the value of social development during centers too. Our students learn how to cooperate by negotiating who will be the customer and who will run the store in the dramatic play center.

Amy Klauder, NYC '99
Assistant Director
Lincoln Park Preschool

Perhaps the best way to understand how centers work is through an example. Consider the following:

Imagine your sixth-graders are reading "Where the Red Fern Grows" and you want them to get more out of it than, well, tears. You begin the day's lesson with a whole group reading of the first half of the chapter. You and individual students take turns reading a few paragraphs out loud to the entire group.

Having studied the sixth grade standards (and designed a long-term plan and unit-plan accordingly), you have identified your objectives for this lesson as the following: the student will be able to...

- a) utilize context clues to determine the meaning of new words,
- b) identify and use descriptive, sensory language in narrative writing, and
- c) identify shifts in perspective in narrative writing and incorporate differences of perspective into their own writing.

During the 15 minutes of whole group reading, you periodically stop and model those skills at spots you have identified as rich teachable moments for those skills in the book. After fifteen minutes, you reach the suspenseful climax of the chapter. You stop the whole group reading and have the students finish reading the chapter silently at their desks. Once students reach the end of the chapter, they quietly go to their assigned "learning center." (There are no transitional management problems because during P.E. last week, you all practiced learning center transitions.) You have set up six learning centers around the room, with each able to accommodate five students. You have addressed each of the three objectives at two of the learning centers.

- At "Context Clues Center 1" you have pulled five sentences from the part of the chapter that students read themselves that contain new vocabulary words. You have a poster explaining the process for using context clues to determine the meaning of new words and you have a worksheet that leads the students through this process with those several sentences.
- At "Context Clues Center 2" you ask students to write down five of their own sentences that include vocabulary words previously unfamiliar to them. They follow the same procedure as above to use context clues to determine the meaning of their chosen words.
- At "Sensory Language Center 1" you have a "Sensory Language Scavenger Hunt." You post examples of sensory language for each of the five senses from earlier chapters in the book. At this center, students must find two examples of sensory language in the chapter you just read for each of the five senses.
- At "Sensory Language Center 2" you ask students to rewrite five sentences from the chapter they just read and include sensory details in their revised sentences.
- At "Perspectives Center 1" students are asked to identify one scene that contains a shift in perspective. They must identify the characters involved and identify the particular point at which the perspective shift occurs.
- At "Perspectives Center 2" you have pulled one paragraph from the chapter. Students must rewrite the paragraph from another character's perspective.

Each student spends 20 minutes at each learning center. You use a kitchen timer to signal times to shift stations. While students are working at the stations, you are circulating, giving guidance, and checking for understanding. You expect each student to complete three centers today and the other three during Language Arts Block tomorrow. With the extra time in your Language Arts Block tomorrow, you will review the objectives during a whole class discussion, giving students opportunities to share the vocabulary words they are learning and the sentences and paragraphs they wrote independently at "Sensory Language Center 2" and "Perspectives Center 2."

Instructional Methods

This, of course, is just one of the many, many ways you could approach the use of learning centers in your classroom. Teachers often incorporate technology, such as computer work or audiotapes, into learning centers. Learning center content can be readily calibrated to match the achievement level of different students. From a classroom management perspective, learning centers are an excellent way to maximize students' learning time. Keep in mind, however, that learning centers require a front-end investment of time to create and to familiarize students with the learning center processes. Students should learn to record their own progress and may need to practice transitions among centers.

Independent Projects

Independent projects also support the needs of all students, as they can be modified on an individual basis with regard to content/skill, length, type of presentation, etc. Perhaps you have a student who often finishes his student practice in half the time it takes other students. You might want to work with that student to create an individual research project he can work on while others are finishing the regular assignment. Perhaps you have a student who has a specific deficit in his prerequisite knowledge. In this case, you might develop an independent project for this student that will address his skill development and also allow you to continue to instruct the rest of the class. Perhaps you want all students to work on a project, yet you recognize the need to vary the length and type of presentation depending on each student's current ability level. For example, some students might present their project orally, while others present a written document. Whether you assign an independent project to one or all of your students, it is important to clearly outline the criteria for a successful project, draft a clear timeline of expectations and provide constant feedback to students along the way.

V. Colleagues In Class – Effectively Managing Assistants And Aides

Some of you, given your grade level, subject matter, or school structure, will have a full or part-time assistant or aide in the classroom. Having help in the classroom can be a fantastic opportunity to maximize the impact of all of the instructional tools and groupings we have discussed in this chapter. Of course, the presence of this colleague has the potential to improve your ability to achieve academic gains of your students or to only complicate your day. The difference lies predominantly with how you take advantage of the situation.

Here are some tips to utilizing your classroom colleagues to further raise the academic gains of your students.³⁷

1. **See yourself as manager.** What do good managers do? They look for the strengths of their staff and utilize those strengths to their fullest potential, while simultaneously supporting them in the development of new skills. Ask your assistant about his strengths and the role he would like to have in your classroom. Ask him what skills he would like to work on. Review what is going well and what could be improved on a regular basis.
2. **Invest your assistant in your goals for the class.** Not only should she know your vision for student achievement, your assistant should have a well-articulated role in making that vision a reality. Ask for her input on the skills and behavior of various students. Ask her for feedback on your instruction and interaction with students.
3. **Provide your assistant with clearly defined tasks.**

³⁷ For additional suggestions, see Morgan, Jill and Betty Y. Ashbaker. *A Teacher's Guide to Working with Paraeducators and other Classroom Aides*. Alexandria, VA: ASCD, 2001.

- a. Put him in charge of a particular center where he can review, drill, or extend student skills.
- b. Ask her to work with students who were absent, helping them to complete missed assignments.
- c. Provide him with a list of students they should target throughout the day, checking that they are following directions and grasping the material (this is especially helpful to you during times of whole group instruction).
- d. Have her facilitate the “time out” space in your room. Placing an adult in charge of the space allows for it to be a reflection center. If a child goes to time out, you can keep working with the rest of the class while the assistant supervises the student as they fill out a reflection sheet (which asks the student to detail what was done, what could have been done differently, and ideas for how to avoid future such disruptions or problems).
- e. Ask the assistant to be in charge of bulletin boards or other room decorations. This is especially helpful if you have a bulletin board that changes on a daily basis, such as a weather calendar.
- f. Ask him to work with students who finish their work early. Manipulative activities that help apply and extend the learned skill can be enjoyable for the assistant and productive for the student.
- g. Put her in charge of various paper work and tracking systems (checking homework, grading quizzes, completing behavior or student progress charts, etc.).
- h. If you have students with significant behavior disorders or other exceptionalities, the assistant can take them for quick walks or monitor the student’s out-of-seat activities.
- i. During small group activities, ask him to focus on one or two groups (vary the level of students he works with – he shouldn’t just interact with “low” or “high” group).

I realized early on that my teaching assistant, though well intentioned, lacked some skills that prevented him from being an outstanding child-care worker. I felt that it was my responsibility to train him. During our bi-weekly meetings, I gave a “mini-training” for him in areas such as talking to difficult students, tutoring one-on-one, leading the classroom when I was called out, meeting with parents, etc. I worried initially that my assistant would be insulted by these mini-trainings, so I tried to make them very professional, with hand outs and role plays. My assistant told me he really appreciated this guidance, and he grew immeasurably throughout the year.

Barb Hamele, Rio Grande Valley ‘97
ESL Resource Teacher
Omaha Public Schools

Make sure your assistant feels appreciated for all he or she does. Assistants need praise just like students (and teachers!). Thank them frequently. If they have been doing an exemplary job, write a note to your principal saying so. Have your students learn to appreciate your assistant as well; perhaps have the students write thank-you notes to him or her.

Conclusion and Key Concepts

In this chapter, we focused on instructional tools used during the “heart of the lesson”—the Introduction of New Material, Guided Practice, and Independent Practice of New Material.

- Teachers use a whole range of grouping strategies as they make choices about how to deliver instruction and have students practice new material. Whole class grouping has the benefit of efficiency, but can risk losing students’ engagement. Small groups work well to teach particular skills or to supervise student practice, but often takes more time than whole class grouping.

Instructional Methods

- Heterogeneous grouping can benefit both the more and less advanced students, but raises concerns about holding back high achievers and intimidating lower achievers. While it may be more efficient in terms of your instruction time, homogeneous grouping may risk stigmatizing students put in lower groups.
- Perhaps the most traditional instructional delivery methods are demonstration and lecture. While a lecture is highly efficient, special care must be taken to ensure students remain engaged. The teacher must consider ways to draw the students into the learning process, paying careful attention to his or her own style of lecture, focusing on clear outcomes, and making modifications for visual learners.
- Teachers often overlook basic questioning techniques as a means of delivering instruction and leading student practice. This tool, however, is one of the most commonly used means of instructing and practicing, and should be strategically designed and implemented. Teachers may ask questions to gain information, but they may also ask them to stimulate thought. Various types of questions (managerial, rhetorical, closed, open) may be more and less effective for this second purpose in different contexts.
- When tackling issues that do not have clear-cut answers, you may choose to foster a discussion to generate student ideas and pool different perspectives. Students can also “discover” the definition of an idea with techniques like discovery learning.
- Graphic organizers are a highly effective means for both delivery and practice of new material. If well-designed, they can help structure new ideas for students and immediately engage them in new and difficult concepts.
- As long as you set clear guidelines, cooperative groups and inquiry-based learning are two ways that students can work together to practice skills or work on a common problem.
- Self-directed independent work can take various forms in the classroom, including learning centers and independent projects.
- By investing your assistant in your classroom goals and providing clearly defined tasks for him or her, you will find yourself able to get your own job done more quickly and easily – and reach more students in the process.

In the next chapter, you will explore how to choose between the various instructional methods you have learned here. Rather than relying on your favorite strategy, you will know how to plan lessons that help you reach your objective most efficiently and effectively.

Lesson Planning, Part Three: Making Effective Instructional Choices

Chapter Seven

Introduction

In the last chapter, you became acquainted with a host of grouping strategies and instructional methods. But given a particular objective, how will you decide what method of instructional delivery you will use and how to group your students?

Some degree of oversimplification is necessary to answer this question, given the infinite number of factors that might play into a teacher's decision to choose one combination of grouping and instructional strategy over another. (For example, decisions about grouping and instructional strategies could be informed by everything from the shape of the classroom to a teacher's headache.) However, we can highlight here the most common considerations for teachers as they decide how to introduce new material in order to most effectively meet their objective. Among the key factors to consider are:

- (1) Student Needs and Interests
 - a. Developmental Levels
 - b. Learning Modalities
 - c. Student Interests
- (2) The Objective's Cognitive Level
- (3) The Nature of the Content
- (4) The Time and Resources Available

Weighing these considerations is an individual process. This chapter will introduce you to all of these factors and show you how two teachers, using the same objective, made different decisions using these factors to ensure student mastery of the objective.

Two Example Lesson Plans

To provide a concrete context for the idea of making effective instructional choices, we will use the following two examples of approaches to teaching students how to write descriptive paragraphs. We will use these examples throughout this chapter to discuss how to make effective instructional choices. Please note that we are not suggesting that one of these lesson plans is necessarily better than the other, as both lessons have strengths and weaknesses.

Making Effective Instructional Choices

Objective: Students will be able to identify the characteristics of a descriptive paragraph and apply these characteristics in their own paragraph.		
Beginning	Lesson A “Learning from Model” Lesson	Lesson B “Cut-Up Poster” Lesson
	Lesson Opening: The teacher tells students that she finished a great book last night that everyone should read. She asks if anyone would like to read it. When someone asks what the book is about, the teacher segues into the day’s lesson: how to write a descriptive paragraph, explaining that in order to get someone to understand the way you have seen or felt something, you need to know how to describe it effectively. The teacher tells the class that they will first discuss the characteristics of a descriptive paragraph, and then they will work with a partner to write a descriptive paragraph on a topic of their choice. The teacher asks a student to repeat back the agenda.	Lesson Opening: The teacher cuts up a huge poster of a garden into small squares and begins the class by distributing one square to each student. The teacher tells his students that later in the period, students will write a paragraph about their square. He explains that the next day he is going to tape up all the squares on the walls around the classroom. After carefully reading someone else’s paragraph to him or herself, each student will try to determine which square their classmate wrote about. The teacher then asks the class to infer what will be the purpose of this activity, guiding them to the objective.
Middle	Introduction to New Material: The teacher writes the characteristics of a descriptive paragraph on the board, and then the teacher and students discuss each of the characteristics that she has enumerated.	Introduction to New Material: Before they write their paragraphs about their poster square, the teacher asks students what they think will ensure that their paragraph can be effectively matched with their picture. Through brainstorming responses to this question, the class generates criteria for what makes a good descriptive paragraph.
	Guided Practice: The teacher provides two paragraphs as examples (one a descriptive paragraph and one not). As a whole group, the class compares and contrasts the paragraphs, discussing which one meets the criteria for a descriptive paragraph and which does not.	Guided Practice: The teacher displays three different squares from the poster. After reading a very explicit and detailed prepared paragraph, he asks students to guess which square was being described. He then asks volunteers to point out how the sample followed the criteria for an excellent descriptive paragraph.
	Independent Practice: The students work with a partner to write a paragraph on a topic of their choice. The teacher asks two students to read their paragraphs and asks other students to explain which criteria they heard.	Independent Practice: Students then use these criteria to write their own paragraphs about their square of poster. The next day they will continue this student practice by reading a peer’s paragraph and matching the paragraph to a picture. They will then articulate to the rest of the class which of the criteria their classmate employed.
End	Lesson Closing: As a class, they review the criteria for descriptive paragraphs. The teacher then collects each paragraph and returns them the next day with written feedback on whether their writing demonstrates the characteristics of a good descriptive paragraph.	Lesson Closing: At the end of the period, the teacher quickly reminds them what will happen the next day and tells them to finish their paragraph for homework if they haven’t already.

(1) Student Needs and Interests

As you are planning a lesson, you will no doubt be wondering, “How will the students respond to this?” “How will my lesson be received?” “Will my students engage with the material?” Clearly, students’ engagement with and interest in the material you are introducing is paramount to their academic success. And, it is common sense that a successful teacher must “meet the students where they are,” bringing the material to them in a way that is conducive to *their* learning.

But what does that actually mean? How does one know how students will best receive new skills and ideas?

A full answer to that question, of course, is more than any book or resource can cover. Students receive information and learn in an infinite number of ways. Pedagogical research has, however, developed several paradigms through which to view student learning that will greatly enhance your ability to make purposeful instructional choices as you contemplate the most efficacious means of “Introducing New Material.” In this section, we will delve into three of those paradigms for considering “Student Needs and Interests”—students’ developmental levels, students’ learning modalities, and (simply enough) students’ interests.

a. Developmental levels

A student’s developmental level plays a significant role in how the student perceives information, relates to others, and manages the working of his or her body. Depending on their developmental stage, students may respond better to certain ways of approaching material. They may or may not have the physical, cognitive, or emotional capacity to complete certain tasks effectively at any particular time, thus requiring you to adjust your approach. For example, children ages 6-8 lack strong near-vision, making it important to provide them with large print, and making copying from the board difficult. Nine to 11-year-olds tend to be pre-occupied with the fear of being seen as different from their peers, making it important for the teacher to be sensitive to singling students out. By understanding your students’ physical, cognitive, social, and emotional stages of development, you will be able to more accurately gauge the appropriate level and type of instructional activities. Chapter Two of the *Learning Theory* course is devoted to describing the details and implications of developmental levels, so we will not repeat ourselves here.

b. Learning modalities

Consider what you know about how you best learn information. For example, are you someone who needs to see something written down in order to remember it? Do you absorb things best when you hear them? Or do you learn best by doing? If you tend to rely more on one of these modalities to learn effectively, it can be frustrating to be in a class where the teacher only uses the other.

As your *Learning Theory* text explains, the form, or modality, in which information is packaged and presented impacts learning, as different students learn and retain information differently. The most commonly referenced modalities or learning styles are sensory learning styles, i.e., visual, auditory, tactile, and kinesthetic. Tactile learners learn most effectively if they are using their hands to touch materials that are helping them learn. Kinesthetic learners learn new information most effectively when the new material is associated with active participation or movement. Sometimes, tactile and kinesthetic learning are treated as variations of the same sensory modality.

In case you need a quick refresher of how these modalities play out in the classroom, consider the following examples of ways teachers might address the needs of these various learners.

Making Effective Instructional Choices

Visual Learners

Visual learners learn best from what they see. Therefore, as you are lesson planning, you should keep in mind that some of your students will learn most easily from visual tools such as:

- diagrams, photographs, charts, graphs, and/or maps
- visually organized notes on overheads
- guided imagery or visualization
- opportunities to take notes or highlight key ideas
- flash cards
- color coded notes to help reveal the categorization of information
- slide shows or movies
- mind maps, acronyms
- for visual learners, still time can be important, as these students may be more distracted than other students by movement or action

Auditory Learners

Auditory learners learn best from hearing spoken words, participating in discussions and explaining things to others. The following are tools you might use in your lesson planning to ensure that you are reaching those students who learn best this way:

- lectures, oral instruction
- reading aloud
- rhythmic sounds and songs
- group discussions
- auditory tapes
- repeating ideas orally, reciting
- poems, rhymes, word association
- music, lyrics
- for auditory learners, quiet time can be important, as these learners may be easily distracted by noise

Tactile Learners

Tactile learners need to experience the world through touch. Many teachers often overlook this learning modality. The following are a few means of addressing these students' unique learning style:

- experiments/labs
- props, physical examples
- making models, dioramas
- textured manipulatives, such as sandpaper letters or foam shapes
- field trips, exhibits, tours
- manipulatives, like unit blocks
- index cards with facts to sequence

Kinesthetic Learners

Kinesthetic learners learn through experience and movement, and make the greatest academic gains when they are involved and active in a lesson. Consider the following strategies to meet these students' needs:

- opportunities for movement
- plays, acting out, role playing
- problem solving
- writing notes
- props, physical examples
- associating gestures with ideas
- experiments/labs
- games
- field trips
- making lists
- associating emotions with concepts

We must emphasize, of course, that **most students can learn in any of these modalities**. While most students learn most easily in one predominant modality, many students have a balance of learning modes, and students rarely learn best in one exclusive modality. The key is to avoid relying too heavily on any one modality (perhaps the one with which you are most comfortable), as your students will invariably represent a range of learning styles. You could, for instance, use a variety of modalities to teach fractions. You might:

- talk through a real-world example of dividing up a pizza among friends (auditory),
- demonstrate the division of the pizza via a chalkboard diagram (visual),
- provide students with cardboard wedges that form a circle and ask them to manipulate the pieces to divide them among different numbers of people (tactile), and
- ask student volunteers to *be* slices of a pizza pie; then separate some volunteers from the group and ask the rest of the class to determine what fraction of the whole is being represented (kinesthetic).

Although it is impossible to include every learning modality in every lesson plan, I tried to use a variety of modalities as much as possible. For example, when teaching students greetings in Spanish, we learned and sang a song about greetings, walked around the class and greeted each other while wearing neckties (for formal greetings), listened and responded to a tape of other teachers in the school saying greetings in Spanish, and read cartoons that depict people greeting each other. Over a few lessons, I knew I met the learning modalities of all of my students, and their mastery of the material was usually evident.

Laura Nalley, DC '98
Director of Learning and Development,
Recruitment Associates
Teach For America

In this way, students have several opportunities to grasp the meaning of fractions, and will most likely find it easier to apply the new knowledge since they have already interacted with it in several different forms.

While it is important to always consider students' learning modalities as you plan, that consideration occurs in the context of the other factors you must consider in making the instructional choices that are going to most effectively reach your objective. You want to ensure you are incorporating a variety of modalities in your lessons, but you shouldn't necessarily try to incorporate every modality into every single lesson. Students need to practice engaging with material in ways that are not necessarily their strengths.

c. Student Interests

A third approach to considering how your lesson plan will be received is through the lens of student interests. We are using the word "interest" here in the broadest of ways. Your students have interests related to content, the social dynamics of grouping strategies, and the liveliness and pace of the instruction. All of those factors should be percolating in your mind as you choose among instructional strategies.

Successful teachers see students' interests as opportunities, not burdens. In fact, you should invest time in knowing what your students' interests are so that you can leverage those interests into academic gains for your students. For example, you may find that the Olympics fascinate the majority of your students. In that case, you might teach an Olympics unit (just think of all the great ways to meet your objectives) in small groups representing countries that the students have researched and written about.

Making Effective Instructional Choices

Students have process-related interests as well that can be used by a teacher to enhance student learning. For example, in your first quarterly feedback form from students (you will find examples of these in the *Classroom Management & Culture Toolkit* ✖), you might receive thirty variations on a theme: “Ms. Smith, you talk too much.” While you certainly have to filter that kind of feedback through your best judgment as a teacher, you may also need to consider using fewer whole-group lectures and injecting more hands-on learning opportunities into your classroom. Similarly, you might realize that, for whatever reason, students perform particularly well in response to a particular instructional strategy. For example, you might find that your students are highly motivated by the opportunity to get in front of the class and present their knowledge, and they work together in small groups very well. You might consider using that strategy more often.

The first set of considerations as you think about which grouping strategy and instructional tool you use to introduce new material are derived from your students themselves. Students’ developmental levels, learning styles, and interests (which we lump together here under the heading “Student Needs and Interests”) are of paramount importance as you plan your lesson and play a major part in whether an instructional strategy will effectively move your class toward your academic goals.

(2) The Objective’s Cognitive Level

The second general class of considerations to weigh as you try to decide among the many grouping and instructional strategies comes from the objective that you are teaching. The cognitive level of the objective being taught (which might be closely tied to the “nature of the content” below) should influence your choices regarding how you organize your students and what methods are used to present information. For example:

- For objectives that involve lower level thinking skills such as knowledge and comprehension (see discussion of Bloom’s Taxonomy, Chapter Two), the teacher should direct, tell, and show the new material. In this situation, **whole group instruction** might be most appropriate.
- For somewhat higher cognitive levels such as application or analysis (for example, students will be able to illustrate the path a water molecule takes through the water cycle), you might have **students explore** the concept **individually** or in a **collaborative group** before moving to a more **teacher-led explanation**.
- If the objective points to higher-level thinking (such as synthesis or evaluation of a complex concept), it may be important to exercise more control from the beginning, opting for a less collaborative and a more directive activity, such as a **lecture** or a **teacher-guided discussion**. In this case, student practice (which is the next step in the lesson plan process) should include activities that require complex thinking, such as designing a science experiment that tests the physics theory about which they have been learning.

(3) The Nature of the Lesson Content

Some concepts and skills—because of their content—are best presented and practiced using a particular instructional strategy, such as lecture, student exploration, or questioning. At the same time, some material is most effectively received in a large group and some in a small group.

- When teaching about the effect of temperature on the solubility of salt in water, **student exploration in small groups** is probably most appropriate, given the process-based nature of the skills that you are teaching and the fact that salty water is difficult to see clearly in a whole class setting.
- When teaching about the implications of cloning, **questioning and discussion** may be the best way to lead the **whole class** to analyze the material because fostering an exchange of ideas may manifest the poles of the larger debate on the issue.

(4) The Time and Resources Available

As we discussed in Chapter Five, successful teachers think critically about how much time to devote to introducing material, and about what resources they have available or can access in order to introduce that material.

For some material, it might make sense to spend a good deal of time up front ensuring that the Introduction to New Material sets students up for success in practicing or using it. On the other hand, some topics are best internalized through practice and might not require lengthy introductions. Given how much you want to accomplish in the year, it often makes sense to choose the instructional strategy that will lead to mastery in the least amount of time. For example, if you have a limited amount of time to teach the properties of water, and the lesson objective could be achieved through either a **teacher-led demonstration** to the **whole group** or **individual student research** (which typically takes longer), you might opt to lead a **demonstration** in order to move on to other objectives sooner. Regardless, always make sure that your timing decisions support the learning of your students.

Similarly, you will almost intuitively be considering the implications of what resources you have available for your instructional choices. Sometimes, for example, you will need to choose a whole group strategy because you only have one set of materials to run an experiment:

- If you want students to conduct in-class research and write about a particular aspect of Jamaican culture, yet you have only a set number of books on the topic, students probably will not be able to work individually. Instead, you might put students into **homogeneous “interest” groups** and distribute the books accordingly.
- If you are conducting an experiment on the surface tension of various liquids, and you have enough droppers and bottles for each student to work individually, you would logically have each student **perform the experiment individually**, and then perhaps **facilitate a whole-group discussion** of the results.

Two Example Lesson Plans—Examining the “Introduction to New Material”

A teacher decides how to introduce new material by choosing a combination of grouping and instructional strategies. Among the factors that inform that decision are (1) the students’ needs and interests, (2) the objective’s cognitive level, (3) the nature of the content, and (4) the time and resources available.

With this decision process in mind, let’s critically evaluate the two descriptive paragraph lesson plans that we introduced earlier. Both lessons were created to reach the same objective—the students will be able to identify the characteristics of a descriptive paragraph and incorporate these characteristics in their own writing. As you will recall, the two lessons took different paths to those objectives. The table below reconstructs some of the reasoning—for better and for worse—that may have gone into deciding how the new material would be presented:

	Lesson Plan A “Learning from Model” Lesson	Lesson Plan B “Cut Up Poster” Lesson
Introduction to New Material	The teacher explains and writes the characteristics of a descriptive paragraph on the board, and then the teacher and students discuss each of the characteristics that she has enumerated.	After opening the lesson by explaining the purpose of the cut-up squares of poster, the teacher asks students what they think will ensure that their paragraph can be effectively matched with their picture. Through brainstorming responses to this question, the class generates criteria for what makes a good descriptive paragraph.

Making Effective Instructional Choices

<p>Choices of Grouping and Instructional Strategies</p>	<p>The teacher chooses to introduce the characteristics of a descriptive paragraph to all students at the same time. This will ensure that the information presented is accurate and available to all students.</p> <p>The teacher uses a small lecture and a discussion to simultaneously deliver the information and assess the students' understanding of the material.</p>	<p>Like Teacher A, this teacher chooses whole group instruction as a means of efficiently introducing new material to all students before engaging them in individual practice, where the teacher will have a chance to assess each student's individual mastery of the objective.</p> <p>Using a student-driven brainstorming and discovery activity, the teacher ensures the students' engagement with the concepts.</p>
<p>Factors that Inform those Choices:</p> <ul style="list-style-type: none"> • Student Needs and Interests • Objective's Cognitive Level • Nature of the Content • Time and Resources Available 	<p>This lesson may not have as varied a set of learning moitiesdal represented as Lesson B. For most students, this lesson would probably be a less engaging experience, at least initially, given its lecture-style presentation and whole-group discussion. That is not to say that this factor would necessarily counsel a teacher not to use this lesson plan. In fact, given the right circumstances (e.g. this strategy is a welcome relief to a week of small-group work, or the students are at an age where lecture is what they best respond to, etc.), this lesson plan might be a good choice. It would be important, however, that the teacher made that decision knowingly.</p> <p>In terms of the cognitive level of the instruction, this teacher focuses upon student knowledge and comprehension. If executed effectively, students will be able to name the characteristics of a descriptive paragraph (and, later on in Guided Practice, identify those characteristics in the writing of others), but it is less clear whether they will be able to or be motivated to incorporate those characteristics into their <i>own</i> writing. This "introduction to new material" therefore does not truly prepare students to achieve the <i>entire</i> objective and should probably be reconsidered.</p> <p>The teacher chooses to save time by outlining the criteria of effective descriptive paragraphs himself.</p>	<p>Both of these lessons were designed for students of similar developmental levels. However, this lesson seems more conducive to tactile and visual learners. In terms of student interest and engagement, this lesson would probably immediately engage more students. The cut-up posters create a mystery inherent in the lesson that will help maintain students' interest and learning. And, the more complex involvement for the students (thinking about the purposes of descriptive writing) might also help them maintain their focus on the day's lesson. A drawback of this approach, however, is that students may not generate all of the qualities of a descriptive paragraph out of thin air; they are given no models from which to divine their criteria.</p> <p>Although both of these lessons have the same objective (with the verb "identify"), Teacher B takes the lesson beyond the relatively basic cognitive level related to "identification" by having the students derive the characteristics of the descriptive paragraph from the picture itself. This method of introduction is geared toward a higher cognitive level (application and analysis), as students generate their own criteria for effective descriptive paragraphs by thinking through the analytical question of what will make their paragraphs identifiable. As a result, these students are likely to be better equipped and more motivated to incorporate the characteristics in their own writing, as called for in the objective.</p> <p>Given the nature of the content of the lesson, a strong sensory lesson plan seems appropriate.</p> <p>As students are generating the criteria themselves (rather than the teacher listing them upfront) this part of the introduction could take more time. Yet the teacher chose to skip the group assessment of paragraphs, assuming that students would internalize the criteria through their own practice. This method of introducing the new material requires more (but not much more) preparation of resources than Lesson A.</p>

The thought process for a teacher deciding how to structure Guided and Independent Practice of new material is analogous to the thought process described above for introducing new material. The teacher faces the same two general questions as before:

(1) How should the students be organized during the practice time?

(2) What practice method should students use?

And, once again, students' needs and interests, the cognitive level of the objective, the nature of the content, and the time and resources available are some of the key factors that will inform a teacher's decision.

Yet there are key differences in the decision-making process this time around, largely because instead of processing the information that the teacher presented, the students are now making the knowledge and skills their own. As we already know from previous chapters, there are particular methods to consider for students to practice new material—including engaging in a series of practice problems with a partner, using graphic organizers, or working on a skill at a center.

Students best internalize new material when they have the opportunity to significantly interact with it, making grouping decisions particularly important in the practice phase of the lesson plan. Whole group activities often do not allow each student to become fully involved, so extended student practice is generally more effective in small groups or individually. On the other hand, some material is most effectively practiced in a large group, such as repetition or recitation of vocabulary words or writing short responses.

If the teacher is concerned about getting accurate individual assessments of each student's understanding, having students work on their own may be preferable. Individual practice also affords fewer opportunities for off-task behavior than does small group practice. Small groups engage students in dialogue about the subject matter, and if the practice focuses on complex subject matter, students will benefit from this exposure to divergent thinking. Small group practice also develops students' skills in communicating complex concepts.

Most of these grouping considerations are common sense, and you will quickly find yourself making these judgments almost subconsciously. You will also find that the same four factors that were so important to the process of introducing new material apply to your determination of how to practice new material.

(1) Student Needs and Interests

The same factors play into how you decide to have your students practice new material, though in slightly different ways.

- You would probably find that your attempt to implement co-ed cooperative learning groups would encounter a different set of **developmental** challenges if you were teaching eighth grade than if you were teaching fourth grade.
- **Student interests** may really come into play when students practice skills on their own. The simple act of allowing students to pick a research topic within some predefined parameters is based upon a recognition that you need to leverage students' interest into learning the key skills in your unit plan.

Making Effective Instructional Choices

(2) The Objective's Cognitive Level

You should ensure that the mental rigor of student practice is aligned with the cognitive level of the objective.

- If the cognitive level of the objective involves *knowledge* and *comprehension*, simple short answer questions and more rote activities can provide effective student practice. These activities give the teacher an easy opportunity to check for student understanding of new terms or skills.
- If the cognitive level of the objective points to *application*, students need to apply their knowledge to specific scenarios, such as word problems in math or a document to edit in language arts.
- If the objective requires *synthesis* and *evaluation*, student practice should include activities that require complex thinking, such as designing a science experiment that tests the physics theory about which they have been learning.

(3) The Nature of the Content

As mentioned in connection with introducing new material, some concepts and skills, by their very nature, are best presented and practiced in particular ways.

- If your objective involves the mastery of some process (determining the area of a circle, or tying shoes, for example), your system of practice should probably involve repeated completion of that process.
- If your objective involves straight memorization of facts (the bones in the human skeleton, or multiplication tables, for example), your practice system should probably engage students in a process of repetition that will facilitate memorization.

(4) Time and Resources Available

The amount of time dedicated to student practice should be a function of the time students need to master the objective. Remember that practice is the most important part of the lesson cycle, so make sure you give students enough time to practice and internalize the content of your objectives. As you might expect, the cognitive level of the objective might also affect the amount of time that should be dedicated to student practice.

- *Knowledge* and *comprehension* activities generally only need to be of short duration. Such activities are suitable to discrete periods of class time or as homework.
- *Application* activities generally take longer, depending on their complexity.
- Complex thinking—such as that demanded by *evaluation* or *synthesis activities*—often requires think-time and usually calls for extended practice.

Again, just as with introducing new material, the types and amounts of resources you have available may also influence your choice of practice strategy.

In addition to these several factors that influence your decision about how to have your students practice new material, you should remember the value of variation. You might think of the need for variety as a fifth factor that will affect your instructional strategy decisions. You will have more engaged (and therefore more successful) students if you vary your instructional strategies.

Two Example Lesson Plans—Evaluating Methods of Guided and Independent Practice

In the same way we returned to the descriptive paragraph lessons regarding the Introduction to New Material, we can critically assess the practice methods (both Guided and Independent Practice, since the factors are identical) used in our two descriptive paragraph lesson plans:

	Lesson Plan A “Learning from Model” Lesson	Lesson Plan B “Cut Up Poster” Lesson
How the students practice new material (first guided, on their own)	<p>The teacher provides two paragraphs as examples (one a descriptive paragraph and one not). As a whole group, the class compares and contrasts the paragraphs, discussing which one meets the criteria for a descriptive paragraph and which does not.</p> <p>The students work with a partner to write a paragraph on a topic of their choice. The teacher asks a few students to read their paragraphs and asks a few other students to explain which criteria they heard.</p>	<p>The teacher displays three different squares from the poster. After reading a very explicit and detailed prepared paragraph, she asks students to guess which square was being described. She then asks volunteers to point out how the sample followed the criteria for an excellent descriptive paragraph.</p> <p>Students then use the student-generated criteria to write their own paragraphs about their square of poster. (The next day they will continue this student practice by each reading a peer’s paragraph and matching the paragraph to the picture, and then articulating to the rest of the class which of the criteria their classmate employed.)</p>
Choices of Grouping and Instructional Strategies	<p>The guided practice puts students in a whole group, allowing students to continue to benefit from the perspectives of their peers. Through an inquiry of examining example and non-example paragraphs, the teachers can provide concrete parallels between theory and practice.</p> <p>Working in pairs to write the paragraph might allow for more divergent thinking but limits the opportunity individual students have to practice. Pairs may also prevent the teacher from accurately assessing each student’s ability to incorporate the characteristics of descriptive paragraphs into their own writing. Also, by only asking a few students to share, the teacher still isn’t able to assess everyone’s achievement.</p>	<p>The guided practice is very similar to Teacher A’s approach in form. Teacher B does not include a non-example, which serves to alert students to potential pitfalls of careless writing in Teacher A’s lesson.</p> <p>By choosing to have students write descriptive paragraphs individually, the teacher provides the opportunity for each student to explore the concept and for the teacher to assess students’ writing individually. The teacher also requires each student to analyze a paragraph individually, again allowing assessment of each student’s achievement when they share their analysis with the class.</p>
Factors that Inform those Choices: • Student Needs and Interests	<p>As mentioned before, this lesson plan does not do a particularly good job of reaching out to various students with various learning styles. However, if the students are at an advanced enough developmental level, they should be able to handle the structure of this lesson without a problem.</p> <p>The fact that students are choosing their own topics is an opportunity to lever their individual interests into energy on this assignment. Moreover, the decision to use the pairing strategy would be made in the context</p>	<p>This lesson seems to have slightly more activity, but it does not include any components that are dramatically helpful to any particular learning modality.</p> <p>The students may be more engaged, however, because there is an element of guessing in the Guided Practice <i>and</i> students know that they are writing their paragraphs for a real world reason – to enable other students to identify their portion of the poster – rather than for the sake of demonstrating their ability to write descriptive paragraphs.</p>

Making Effective Instructional Choices

<ul style="list-style-type: none">• Objective's Cognitive Level• Nature of the Content• Time and Resources Available	<p>of the teacher's previous experiences using that technique.</p> <p>The practice techniques of this lesson are much more aligned with the cognitive level indicated by the objective "to identify" than are the practice techniques of Lesson B.</p> <p>Writing the paragraph is an application level activity, and the following group discussion involves analysis. However, by asking students to identify their own topic, the teacher forces students to expend energy on developing a topic in addition to creating a paragraph that's descriptive.</p> <p>Working in pairs generally takes longer than working individually, especially for students not accustomed to group work. Depending on the advantages of this grouping strategy, the extra time may or may not be worth the investment.</p>	<p>Here students not only create their own paragraphs with a clear purpose in mind, but are also each required to analyze writing samples of their peers' to identify the characteristics of descriptive writing. This increased mental rigor is likely to facilitate student internalization of the skill. The acceleration of the cognitive level being taught, however, means either that the objective was not designed ambitiously enough or that the students may not (for developmental or prerequisite-knowledge reasons) be able to meet that objective.</p> <p>This practice will probably extend into two class periods, and the teacher will need to allow more flexibility to move at the pace dictated by students, given that so much of the work is student-centered. This time allocation might be worth it given the possibility of increased student internalization of the material.</p>
---	--	---

Conclusion

Consider this chapter another layer of elaboration on the skeleton of the lesson plan structure. In Chapter Five, you learned the five parts of the lesson cycle. In Chapter Six, you learned ways to fill the different parts with strategies. This chapter has served to synthesize those elements and add a bit of strategy to the choices you make when creating your plan. To review, those strategic factors are:

- (1) Student Needs and Interests
 - a. Developmental Levels
 - b. Learning Modalities
 - c. Student Interests
- (2) The Objective's Cognitive Level
- (3) The Nature of the Content
- (4) The Time and Resources Available

You now see that choosing a particular instructional method and grouping strategy is a function of considering these factors. By considering the readiness of your students (kindergartners are not developmentally equipped to handle an independent study), their optimal learning conditions (students of all ages may need visual, as well as auditory, explanations of new material), the goals you hope to reach (giving a lecture analyzing the arguments for and against the death penalty misses a great opportunity to engage student opinions on a controversial issue) and the time and resources you have (there might not be enough copies of *The Outsiders* to do independent reading), you will go a long way in reaching objectives with your class.

The last chapter of this course sharpens these factors even further—by asking you to consider the multitude of individual student needs in your classroom and plan specific instructional methods to reach them. This is a challenging but necessary final step to make your teaching truly student-centered: differentiation.

Differentiation

Chapter Eight

- I. Differentiating Instruction
- II. Supporting Students With Special Needs
- III. Supporting English Language Learners

Introduction

*The biggest mistake of the past centuries in teaching has been to treat all children as if they were variants of the same individual, and thus to feel justified in teaching them the same subjects in the same ways.*³⁸

-Howard Gardner, multiple intelligences theorist

As you know from the last chapter, teachers should consider “student needs and interests” as a significant factor in choosing how to group and instruct their students. Included under that umbrella are students’ developmental levels, learning styles and interests. In that last chapter, we discussed how those variables affect instructional choices as a teacher plans for introducing new material and for practicing new material. In this chapter, however, we encounter the same concept in a slightly different context. While we were discussing how we plan to teach an entire class in the last chapter (and the ramifications of varied learning styles or developmental levels for the day’s general lesson plan), you might encounter students whose developmental or learning style differences are so profound that you need to differentiate your instruction for them more drastically.

When you begin teaching, you may be surprised to discover the diversity of academic proficiency and learning needs in one classroom of students. Some of your students might be struggling with language development. Some may have already mastered the math skills you planned to teach. Some might seem proficient in spoken English, yet are three grade levels below where they should be in reading comprehension. And some may not seem to understand your verbal explanation of material. As teacher-educator Lilian Katz once said, “when a teacher tries to teach something to the entire class at the same time, chances are, one-third of the kids already know it; one-third will get it; and the remaining third won’t. So two-thirds of the children are wasting their time.”³⁹

Many corps members will tell you that the range of achievement levels and learning needs in their rooms was one of the most surprising—and perhaps most intimidating—aspects of their first days and weeks of teaching. All corps members will tell you that such a range is a fact of teaching, and it only increases in the upper grades. At the beginning of the year, Maya Buseman-Williams’ students ranged from just below grade level in reading to dramatically below grade level, and she had one student who didn’t speak English. Karen Fierst taught Special Education in New York City. Four of the students in her class were reading on a beginning first-grade level, seven had splinter skills from kindergarten, and five were non-readers. Students presented a variety of other issues beside their academic performance, including four students with speech and language disabilities. One child exhibited many characteristics typically associated with autism, and another exhibited characteristics of an undiagnosed behavioral disability.

³⁸ Siegel, J., and M. Shaughnessy. (March 1994). “An Interview with Howard Gardner: Educating for Understanding.” *Phi Delta Kappan* 75, 7: 563–566.

³⁹ Willis, Scott. “Teaching Young Children: Educators Seek ‘Developmental Appropriateness.’” *Curriculum Update*, November 1993, pp. 1–8.

The fact that you are not the first teacher to face a group of students with many achievement levels and learning needs is probably not reassuring. You've got your long-term plan, your unit plan, and your lesson plan, but now you are facing thirty individual students (or perhaps five sets of 30), each with different academic strengths and weaknesses. How do you simultaneously teach the class and address the needs of each of the individual students in your room?

In a nutshell, the answer is...with hard work, careful organization, and smart planning. This chapter is last for a reason. While it is easy to *say* that differentiating your instruction to meet your students' various needs is your responsibility (which it is), it is much harder to do. We acknowledge this upfront because it would be difficult—and in some cases unwise—to implement all of these strategies we will outline in this chapter at once. Creating a truly “differentiated” classroom is a process of adding layers of high-quality, customized instruction to your teaching repertoire.

The results that came back from my first assessment of my 2nd graders were intimidating. Six students didn't know the alphabet, three were above grade level, and the others ranged widely in-between. It was then that I realized that I needed to do everything I could—to completely differentiate my program—so that I could meet all those needs every day with my instruction.

Amanda Timberg, Los Angeles '96
Regional Director, Greater Manchester
Teach First

By implementing the techniques we identify here and further explain in your institute sessions, by constantly reflecting on your instruction, and by observing other teachers who have mastered the skill of differentiated instruction, you will be on your way to raising the achievement of each student in your classroom.

In this chapter, you will consider specific strategies to modify your instruction to meet the diversity of achievement levels and learning needs in your classroom. First, we will consider means of handling diverse skill levels and needs (Section One). In Section Two and Section Three of this chapter, we will turn to specialized schools of individualized instruction, addressing students with special needs and students who are English Language Learners.

It is important to recognize that “differentiated instruction” is *not* a euphemism for lowered expectations. On the contrary, differentiated instruction comes with the realization that to meet your high expectations for your students, you must recognize their individual instructional needs. We aim for all students to reach the standards mandated for their grade level. But we recognize that it may take some students more time, or different methods, to get there. For some, it will take less time. By beginning our instruction where students are, we are inviting them to reach high goals with us. Otherwise, we will be striving alone.

I. Differentiating Instruction

Differentiated instruction is the approach that supports the success of all students given the different achievement levels, developmental levels, and learning needs within one classroom. It would be pointless to ask a child measuring four feet tall to dunk a basketball in a hoop at regulation height (10 feet), or at four feet for that matter. The point is not to make tasks easy for the child. It is to make tasks possible. You would teach the skill of dunking at the intersection of challenge and ability for that individual child, what educational theorist Lev Vygotsky would call the “zone of proximal development.” Similarly, teachers make modifications and accommodations to a lesson in order to meet students where they are – and stimulate growth. Carol Ann Tomlinson, an expert in the field of differentiation, shows how

Differentiation

teachers can differentiate content, process and product according to students' readiness, interest and learning profile.

Basis for Adjustments

Tomlinson highlights three reasons why a child needs a differentiated assignment:

- The first is **readiness**, referring to a child's current performance level (lack of basic arithmetic skills, for example). As we also know from *Teaching as Leadership*, motivation is the product of expectancy ("Can I do it?") and value ("Is this worth doing?"). If something is way beyond your reach, you will not have much motivation to try.
- Another is **interest**, or the level to which the student is motivated or engaged by a particular topic. If the objective is to write a persuasive essay but the standards do not specify a topic, then students would be more likely to work hard on an assignment if they had some choice in choosing their subject matter. Sometimes, student interest cannot be the first and foremost concern of teaching when state standards dictate certain content; however, Tomlinson notes that teachers can coordinate individual student "sidebar studies," tapping into student interests (music, sports, or fashion, for example) and having students look out for their special topic within the context of the classroom's subject matter.
- Finally, teachers may need to make modifications based on a student's **learning profile** – which includes their developmental level, learning modality, cultural difference and special needs status.

Using Your Progress Tracking System to Help Identify Needs

Back in Chapter Four of this course, you learned that part of the Unit Planning Process is creating a progress tracking system that allows you to know which objectives your students have mastered. For teachers who differentiate their instruction to help students at different performance levels make significant progress, such a record-keeping system is as critical as rules and consequences are to classroom management.

Remember that a tracking system is **different than keeping a list of test grades**. If you just kept a list of grades, you might know that Jack got a 25 on your unit test and Jill got an 89. But you would not know that Jack completely mastered one of the objectives assessed on the test, or that Jill completely missed one. And unless your tests were extremely well labeled, they wouldn't know that either.

When you track your students' progress, you're making a chart or spreadsheet with the objectives you teach along one axis and your students' names along the other. When you create your assessments, you plan questions that test each objective. By analyzing your students' assessment results for each question, you can chart which objectives your students have mastered and which ones they still need to develop. So can they.

As an example of one way this system could work in your classroom: let's imagine that, on your first assessment, questions 1, 2, 7, 8 and 9 measure mastery of Objective A. Ernie gets all five questions correct. Both you and he mark your respective progress tracking sheets with a check in the appropriate box, indicating that Ernie is a pro at objective A. Meanwhile, on the same group of questions, Bert gets only one correct. You and he mark his box for Objective A with a 1, indicating his score and signaling that he needs more assistance or a different method of instruction. As a result, you might

Objective A			
Name	9/16	9/23	9/30
Ernie	√	√	√
Bert	1	3	√

choose to group Bert with other students who missed objective A and work with them on strengthening their skills, or you might ask Ernie to explain objective A to Bert in a new way. On each subsequent assessment, you might include new questions about Objective A (or you might offer Bert a chance to earn his checkmark after school). After a few attempts, Bert gets four out of five questions right, enough to be considered proficient. Bert has earned a check.

Justin Meli, Houston '03, has provided a description of the system he uses in his third grade classroom:

Each student in my 3rd grade classroom has a **binder**. This binder stays on a shelf at the front of the room when not in use and may not be removed from the classroom. This binder serves as a working portfolio for each student as well as a mechanism for allowing them to track their own progress. I exhaustively modeled the procedures for using a binder (i.e. we practiced opening and closing the rings, gently turning pages, and putting things away in the right place), and I dictate the exact organization of the binder, down to the order of each page. Each student keeps his or her tracking sheet in a plastic sheet protector at the very front of the binder.

Students have multiple chances to earn **mastery stickers** for each objective. The first opportunity is on the **unit test**. This helps students view testing as more than just an opportunity to pass and please the teacher: it is a vehicle for demonstrating his or her own abilities and success. My **criteria for awarding mastery** is an 85 percent. If a test covers several objectives, I will disaggregate the scores and award mastery stickers accordingly.

If students do not earn a mastery sticker through performance on a test, they have an opportunity to do so through **mastery quizzes** taken at their own pace. Every Friday, during "center time," students are scheduled for two fifteen-minute "**achievement blocks**" during their six center rotations. They may take a mastery quiz of their choice during each of these blocks. The quizzes are labeled in hanging folders and easily accessible during this time. If a student does not achieve mastery on a quiz, they must **schedule an appointment** with me during lunch, ancillary, or after-school tutorials (a.k.a. "Math Club") to relearn a skill before they are permitted to retake the quiz. As soon as students demonstrate mastery, they are ceremoniously awarded a mastery sticker.

A large, public **mastery grid** on the wall of the room echoes their individual achievement, provides additional incentive to obtain mastery, and allows me to keep track, at a glance, of where each student falls on mastering individual objectives.

Your system may change depending on your subject area; in a language arts classroom, you might be regularly assessing your students' writing against a rubric and measuring growth in particular skill areas. The gist of the system, however, remains the same: by maintaining regular records of your students' progress based on the objectives you teach, you can be well informed about the adjustments you may need to make in order to help each of your students move forward.

Differentiation

Strategies for Adjustments

Your tracking system allows you to pinpoint some of the areas of improvement in which your students need increased practice or a different instructional approach. Tomlinson cites three ways for differentiating assignments for individual students:

- Recognizing that there is more than one way to meet an objective, a teacher can adjust the **product**, or tool, that demonstrates a student’s attainment of a given object. For example, if an objective states that a student will be able to identify the climax of a story, a student could choose to write a description or draw a picture. Teachers often provide “menus” of products so that students can select the way in which they can exhibit mastery of the objective.
- A teacher can also modify the **process** of learning, allowing students struggling with basic arithmetic to use a calculator when attempting to demonstrate the relationship between distance, rate and time. If a student should be able to explain the causes of the French Revolution, that child could first learn those causes from a text, an audio or video recording or a detailed comic of the event, based on their literacy readiness, their interest, or their learning profile.
- Finally, effective differentiation could include a change in the **content** itself. In one elementary classroom, the teacher may set up three centers: in one, students are practicing repeated addition, using manipulatives; in another, students are performing one-by-one digit multiplication on their own and two-by-two digit multiplication with a calculator; a third group is performing two-by-two digit multiplication through strict computation. In a middle school English classroom, if a child has already read *The Outsiders*, you might challenge her with *Lord of the Flies* instead of asking her to repeat what she’s already accomplished.

Ultimately, the spirit of these adjustments lies in the importance of all students meeting objectives – with the recognition that some children will simply need extra support or use different routes when getting there. For those who say differentiation is not fair, it is true that not every student is treated the same in this approach. But that’s because kids are at different levels and have different needs. It would be unfair to withhold glasses from someone who cannot see. It is unfair to expect students performing at very low or very high levels to do the same activities.

In the chart below, you’ll notice the ways in which a differentiated classroom differs from a traditional classroom. You may find that some aspects of a truly differentiated classroom may be unrealistic to implement in your classroom or your school. For example, you may not be able to change a district grading scale to define success as student growth and improvement. This chart simply aims to convey the *intent* of differentiation and encourage you, when possible, to create policies and assignments that recognize where individual students begin and how individual students learn.

What makes a traditional classroom different from a differentiated classroom?

Traditional Classroom	Differentiated Classroom
<ul style="list-style-type: none">• Student differences ignored or acted upon when problematic• Assessment only at the end of learning to see “who got it”• One definition of excellence exists (100 percent achievement, on objectives tested once)• Student interest infrequently tapped• Whole-class instruction dominates	<ul style="list-style-type: none">• Student differences studied as a basis for planning• Assessment on-going and diagnostic to be responsive to learning needs• Excellence defined in large measure by individual growth for a starting point• Students frequently make interest-based learning choices• Many instructional arrangements (groupings,

<ul style="list-style-type: none"> • Coverage of texts and curriculum drives instruction • Single option assignments • A single text prevails • Time is relatively inflexible • Students assessed in one way • The teacher directs student behavior 	<ul style="list-style-type: none"> partner work, centers) • Multi-option assignments • Multiple materials provided (visuals, manipulatives) • Time is flexible, based on student need • Students assessed in multiple ways • Teachers facilitate student self-reliance
---	--

Here are some of the methods that Tomlinson's research has shown to advance the academic achievement of students who represent a range of skill levels and learning needs:⁴⁰

Tiered Assignments

In some situations, you may find that you can actually use varied levels of student practice and activities to ensure that students explore ideas at a level that builds on their prior knowledge and prompts continued growth. For example, a teacher might strategically choose each student's book for a book report assignment to be sure that each student reads a book that reasonably challenges his or her ability. Clearly, this strategy requires some degree of caution by the teacher to ensure that a different assignment does not become a stigma among students. However, with careful planning and implementation, tiered assignments can be an excellent means of simultaneously promoting students' confidence and challenging students' intellect and skills.

Varying Questions

A somewhat different version of the "tiered assignments" idea above is to vary the sorts of questions posed to different students based on their ability to handle them. While all students need to be accountable for the objectives you have set for a particular lesson, students will master that objective at different speeds. Varying questions is an excellent way to build the confidence (and motivation) of students who are reluctant to contribute to class discourse. Note: Most teachers would probably admit that without even thinking about it they tend to address particular types of questions to particular students. In some cases, such tendencies may need to be corrected. (For example, a teacher may be unknowingly addressing all of the more challenging questions to one student, thereby inhibiting other students' learning and fostering class resentment of that student.) Question variation based on achievement should be a well-considered decision designed to facilitate the academic advancement of each student by addressing individual needs.

Learning Centers

As discussed in Chapter Six, a "learning center" is a station or collection of materials that students might use independently to explore topics or practice skills. Because students are essentially working independently, centers allow students to work at their own pace. And, with careful planning, you can subtly modify the work for individual students. Teachers will constantly reassess their students to determine which centers are appropriate for students at a particular time, and to plan activities at those centers to build the most pressing skills.

⁴⁰ The above chart and the following techniques have been adapted from Tomlinson, Carol Ann. *How to Differentiate Instruction in Mixed-Ability Classrooms*. Alexandria, VA: ASCD, 2001.

Differentiation

Independent Projects

Perhaps you have a student who is able to finish her student practice in half the time it takes other students. Or perhaps you have a student who has a specific deficit in his prerequisite knowledge. In some cases, you may decide to give an individual student an independent project that will address that student's needs so that you can preserve the bulk of your time with the rest of the class. For example, perhaps you have a student for whom your measurement unit is simply a waste of time. You might consider designing an independent project that would culminate with that student presenting a more sophisticated measurement concept or process to the rest of the class.

My biggest success in differentiation is in the choice assignments I give my students. Along with written tests, I give my students a choice of four options in order to show me what they have learned. These choices may be writing an essay, creating a diagram, making a prediction, designing an experiment, authoring a story, making up a board game, or even writing a song. Each student understands things a little bit differently and expresses knowledge of a subject in a different way. My students love choice assignments; they are always excited to know that is how I will be testing their knowledge.

Tanya Holtmeier, Philadelphia '03
7th and 8th Grade Science

As you may already realize, the hardest part about differentiated instruction is preparation; developing assignments that are tailored to the different needs in your classroom is time and energy consuming. Experts including Tomlinson encourage educators to start small – with low-investment techniques like allowing students to choose from a **menu of products** when demonstrating their knowledge of objectives. If your objective was for students to describe the effects of the Civil War, you could allow students to write a ballad as a Confederate soldier or widow, write an essay or draft a skit, as long as the end product effectively described the effects of the Civil War according to your criteria.

If you were trying to reach the learning objective with students of different literacy levels, you could create a **jigsaw** activity. This involves grouping students based on their reading proficiency, dividing a given topic into pieces (the economic, political and social impact of the Civil War, for example), and finding an appropriate text for each group to learn about one of the areas of study. Students later get into heterogeneous groups to share their findings with their peers, who have read about different areas of study from source texts on their own reading levels. The jigsaw technique allows you to tackle the same subject with all of your students while discreetly providing them the different tools they need to get there.

If some of your math students score a 100 percent on your fractions diagnostic test while others are clearly struggling, prepare an **independent study project** (one idea: compare the ratio of ads to news in different newspapers and figure out which paper is a better deal) for your advanced learners while providing direct instruction for those who need more guidance. This approach does not suggest precluding the latter group of students from hands-on learning or discouraging them from pursuing engaging projects, but it does mean tailoring instruction to move them forward. Similarly, an elementary teacher attempting to meet spelling standards might develop a **tiered assignment** of target words for different levels of proficiency, assigning weekly lists to everyone based on their starting level.

Some classrooms are almost completely student-paced, with children working on assignments that target their individual needs and the teacher presenting mini-lessons on the standards that do not require prerequisite skills. Obviously, this kind of classroom would require exemplary student discipline and elaborate planning. You should integrate differentiation into your classroom at a pace you can handle, and your efforts will yield a gradual indication that you are meeting more and more of the individual needs of your students. Peruse the **Differentiated Strategies Glossary** in the Toolkit to find more ideas for adapting your lessons, as well as additional resources to access (pp. 78-80). ✨

Assessment and Differentiation

An inherent tension that you will no doubt encounter as the instructional leader of your classroom is the difficult balance between criterion-referenced assessment (which measures student performance relative to an established set of standards) and improvement-referenced assessment (which would highlight a particular student's improvement over time). This tension is particularly stark for a teacher who is assigning grades to students. Should grades be based solely on mastery of your objectives? If all students achieve the objectives, will my principal question the high percentages of A's? How do I consider the amount of progress each student has made?

There is no easy or correct answer to these questions. As noted in the Grading Supplement, most teachers develop some means of considering both achievement and growth in their grading systems, by maintaining and sharing progress charts that demonstrate student improvement and by seizing opportunities to write qualitative comments that accompany a numerical grade. While not every teacher gets to determine how progress reports are constructed in their district, Tomlinson suggests the following grading systems for teachers who wish to differentiate their instruction completely:

If much of the time I give a student work appropriate for his or her current needs, I must then grade the student's work on the basis of clearly delineated criteria for quality work on that task. It makes little sense to assign an appropriately challenging task and then grade a student on something else...When I grade those assignments, I note in my grade book the differentiated assignment and the student grade on that assignment. When I give all students the same task (for diagnostic purposes, for purposes of benchmarking student standing relative to common goals, or because I simply could not find the time and energy to differentiate the work), I'll make a note in my grade book and enter the more normative grade....

On report cards, I need to find a way to show individual growth and relative standing to students and parents. I can accomplish this by working with colleagues to develop report cards that...note, for example, that an A means excellent growth, a B means very good growth... and an F means no observable growth – coupled with a notation that a 1 means the student is working above grade level in the subject, a 2 means the student is working at grade level in the subject, and a 3 means the student is working below grade level in the subject. A student might then, for example, earn an A1 or B2...I can accomplish the same end by attaching a note to the report card or conducting parent-student conferences. Doing so allows me to explain that the student's grade takes into account both differentiated and common tasks, to show how the grade reflects both, and to interpret what the grade means for the particular student's learning.⁴¹

Tomlinson acknowledges that many differentiated strategies seem to chafe against the traditional structures and notions of school, but that common sense teaches us that to expect every child to act, perform and learn the same ways is folly. She concludes many of her publications and lectures by explaining that creating a differentiated classroom is not a snap-your-fingers task – but is something you work at day-by-day, child-by-child.

⁴¹ Tomlinson, Carol Ann. "Grading for Success." *Educational Leadership*, March 2001: 14.

Differentiation

II. Supporting Students With Special Needs

On one hand, the special education system is a straightforward extension of the notion of differentiation that we have already explored. Special education programs are designed to meet the individual needs of all students by requiring individualized instructional plans for them. On the other hand, it is a wildly complex and dynamic bureaucratic system of forms, laws, and meetings. New general education teachers and new special education teachers alike are often surprised to learn the weight of the administrative responsibilities that the special education system may put upon them.

In this section, we will explore instructional modifications and support systems developed for students with formally identified special needs. We have purposefully included this information in our general Instructional Planning & Delivery course, intending it to reach all new corps members, not just those who expect to have a “special education placement.”

Special Education Across the Curriculum

You will notice that special education-related issues are discussed in each of the various course texts that you are reading in preparation for institute. A chapter in the *Learning Theory* text, for example, will give you an overview of the legal categories of disabilities. Keep in mind that you will also be receiving a Special Education Supplement and Toolkit this summer to further support your instruction of students with special needs.

With very few exceptions, all teachers interact with the special education system. Even if you have not been assigned to teach special education, you should expect to teach students enrolled in special education programs. You will need to know who those students are and what instructional modifications they require. In fact, it will be your legal responsibility to meet those students’ needs appropriately.

Introduction: A Brief History and Introduction of Terms

While the special education system is ultimately designed to benefit individual students with special needs, most new teachers would probably say that their initial exposure to the system had less to do with a particular student than it did with a swirling collection of acronyms, laws, and forms. The special education system is actually a federally designed set of requirements imposed on state education systems. These federal requirements create a paper-intensive accountability system intended to ensure that every student in the system receives the particular instruction that he or she needs. That instruction is memorialized for each student in a document with which you will, in all likelihood, become quite familiar—the Individualized Education Program (IEP).

Before we explore the ins and outs of the IEP, it may be helpful to have some of the historical context from which the IEP and other requirements have evolved.

Federal Legislation: “Section 504,” IDEA and NCLB

Unlike many other areas of education policy, the notion of special education for students with disabilities has been largely driven by the federal government. In response to intensive parent advocacy both in Congress and in courts across the country, the legislature passed laws that impose on states certain standards of treatment and support for students with disabilities. Thus, the evolution of special education in this country is framed by several pivotal acts of Congress—most notably Section 504 of the Rehabilitation Act of 1973 and the Individuals with Disabilities Education Act (IDEA) of 1990.⁴²

A cursory glance at these two laws will provide a valuable overview of the special education system in this country. (Key phrases—that you will undoubtedly hear again—are bolded.)

⁴² Text of IDEA available at <http://www.ed.gov/offices/OSERS/Policy/IDEA/index.html>, accessed 1/31/07.

Section 504. The first significant nationalization of special education occurred with Congress' passage in 1975 of Public Law 94-142, the Education for All Handicapped Children Act. This law was passed pursuant to an earlier, more general civil rights law protecting the rights of persons with disabilities known as "Section 504" of the Rehabilitation Act of 1973, and was the most sweeping statement the United States had ever made about rights of children with disabilities. This law assured a **"free and appropriate public education"** (often referred to as "FAPE") to all children with disabilities between the ages of 3 to 21.⁴³

This 1975 legislation contained four provisions that continue to provide important parameters for programs that serve students with disabilities:

Children, Laws, and Acronyms

Sometimes new teachers are overwhelmed or intimidated by the law-intense structure and vocabulary of the special education system. Veteran teachers would tell you that while the system can be frustratingly bureaucratic, you do not have to be a lawyer to navigate it. And, more importantly, knowing the names of various laws that require a "free and appropriate education" is not nearly as important as understanding that you have a student with special needs who requires certain modifications/accommodations, and that the Individualized Education Program (IEP) is where those modifications/accommodations are listed.

- (1) Schools and districts must follow **due process** when referring a student for special education services to ensure that the student's parents have an important role. Essentially, this requirement means that the timing, confidentiality, and special services requirements under the law are taken very seriously, and often lead to legal or quasi-legal hearings.
- (2) The **rights of the student and his or her family** must be protected throughout the evaluation procedures. Closely related to the due process principle, teachers and schools must involve students' families in the decision process.
- (3) Students are to be educated in the **"least restrictive environment (LRE)."** That is, a student has a right to be taught in whatever setting can provide for his or her needs that is the closest to a typical general education setting (see the graphic below).
- (4) Each student must have an **Individual Education Program**, also known as an **IEP** (much more on this below).

IDEA. After some additional tweaking of the Education for All Handicapped Children Act in the 1980s, in 1990 Congress re-worked, re-authorized and re-named that law, thereby passing the **Individuals with Disabilities Education Act (IDEA)**. (These changes were made in the course of passing the sweeping civil rights legislation, the American with Disabilities Act (ADA).) Congress shifted the law's emphasis from providing services for categories of handicapping conditions to providing services for individuals. IDEA remains the governing law regarding students with special needs.

In 1997, Congress amended the IDEA to require students with special needs to participate in the standard statewide assessments, with appropriate accommodations. The intent of that newer version of the law is to ensure that educators of students with special needs are held accountable for their students' learning through existing testing programs. Many states and school districts are just beginning to develop and implement assessment models that accommodate all students.

⁴³ Text of Section 504 available at <http://www.dol.gov/oasam/regs/statutes/sec504.htm>, accessed 1/31/07.

Differentiation

This 1997 version of the IDEA further establishes an emphasis on the participation of students with special needs in the general education curriculum. The **inclusion movement**, which places students with special needs in general education classrooms with support and which has gained significant momentum in recent years, is a key approach to addressing the requirements of the 1997 version of IDEA. Another key provision of this most recent legislation is that parents are now full members of the teams that make eligibility and placement decisions. The 1997 revisions also addressed behavioral disabilities in a new way. Behavior plans, documents that are developed in addition to an IEP, became mandatory for students with behavioral disabilities and manifestation determination meetings became required for students with disabilities who were in danger of expulsion from school. **Sample IEPs** are provided in the Toolkit (pp. 81-87); Sample Behavior Plans can be found in the *Classroom Management & Culture* Toolkit; both resources will be available in the *Special Education* Toolkit. ✕

NCLB. In January 2002, President George W. Bush signed the **No Child Left Behind** (NCLB) Act into law, requiring that states develop standards and test students annually to determine that school districts are making “adequate yearly progress.” NCLB holds states accountable for the progress of all students, including those with special needs; identified students may be given “accommodations” mandated by their Individual Education Program (e.g. more time, larger print) to be successful on the test. Students with the “most significant cognitive disabilities” may be held to different achievement standards, but their performance is also calculated into a school’s “adequate yearly progress” report. This new system is significant for two reasons. First, since the tests for students with special needs are aligned with grade-level standards, schools will need to ensure that students with special needs are taught on grade-level. In addition, NCLB may help alleviate the problem of schools over-referring students to special education in order to exempt them from state requirements.

While new legislation is constantly fine-tuning this system, this cursory history provides a good summary of the special education landscape as it exists today. You will also find that these key terms and phrases are used through out the special education system. (Keep in mind that in many states, additional state laws supplement these federal laws, so you may need to familiarize yourself with the phrases and acronyms used in your district.)

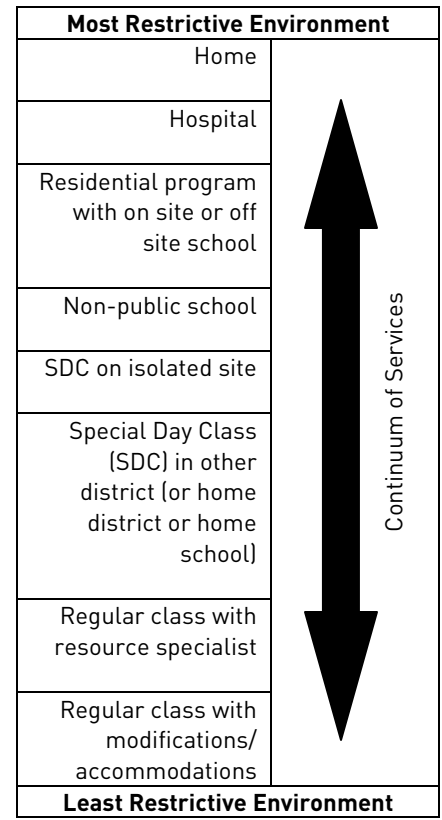
The Basic Structures and Settings of the Special Education System

While the grand history of special education is driven by federal legislation, from a student’s (and many teachers’) perspective the special education system is actually all about individualized instruction to meet a student’s individual needs. In simplest terms, a student who qualifies for special education receives an individualized education program (an IEP) that is developed by a team of adults including the student’s parent or guardian. (The student may be involved as well, when appropriate.) This team is ultimately accountable for the student’s mastery of the goals set in the IEP, and the students’ teachers are responsible for modifying and/or accommodating instruction for the student pursuant to that IEP.

A good deal of the complexity of the special education system relates to the vast range of special education “settings” that have been developed (to meet the needs of the vastly diverse group of students with special needs). Some students in the special education system might attend all of their classes in the “general” education system, having little more involvement with the special education system than subtle accommodations by one or more of their teachers, or an occasional visit to a “resource room” where they receive special tutoring in some area. At the other end of the continuum, other students are taught in “self-contained” special education classrooms where all of the students in the room have relatively demanding special needs.

As you prepare to enter the classroom, you need to be aware of the many varieties of special education settings that schools use to ensure that each student is being taught in the “least restrictive environment” (LRE). That provision requires that each student with special needs be educated in a setting as close as possible to a regular classroom environment in which his or her needs can be met. Schools’ attempts to meet this requirement have generated various special education placements:

Mainstreaming (*represented by the lower two boxes on the graphic*)—In the 1970s, schools began to “mainstream” students with disabilities by placing them in the same schools and classrooms as peers without disabilities (as opposed to students with disabilities being kept entirely separate from other students, which was the former practice). Mainstreaming became more common with the realization that some students with disabilities learn better in regular rather than special education classes. (Mainstreaming can be controversial, however, in the cases of students who have severe emotional or behavioral disabilities that may prove disruptive to the entire class.) Typically, mainstreaming involves students with disabilities participating in *some* regular academic or non-academic activities with their typically developing peers (e.g., reading, math, lunch, recess, music) but not in the entire day’s instruction and activities. The students may attend these classes on their own or with an instructional assistant.



Inclusion—A relatively new model, “inclusion” continues to be the trend in special education placements today and is considered by many educators to be the ultimate manifestation of our commitment to educate each child, to the maximum extent appropriate, in the school and classroom that he or she would otherwise attend. The philosophy underlying the inclusion movement is that schools should bring services to the students rather than bring the student to the services. Typically, in an inclusion model, the special education teacher goes into the general education class to support their students in the general education setting. (By contrast, in the mainstreaming model, the general education teacher may be solely responsible for the students’ accommodations.) Less common is a consultative model where by the special education teacher advises the general education teacher on supporting the student instead of working directly with the student. Under that typical collaborative model, however, the special education teacher may co-teach with the general education teacher, work with a small group of both special education and general education students, or focus on the students who are receiving special education services. Ideally, the special education and general education teacher collaborate closely to ensure that students receiving special education

One of the most rewarding experiences I’ve had as a teacher is including children from special education classes in my general education class and later having them mainstreamed into my class for the whole day. There are so many students in special education who have been misplaced. Once they find the right setting, they can flourish, and the progress they make is amazing.

Serapha Reed, New York ‘95
5th and 6th Grade Math

Differentiation

services are engaged in the same curriculum and activities as their classmates. Opponents of inclusion assert that teachers either end up devoting a disproportionate amount of energy to assisting students with special needs to the detriment of other children, or end up ignoring their special populations due to lack of insight on how to make the curriculum accessible to a wide range of needs. But supporters argue that, when done well, inclusion benefits all parties involved—children with special needs, students in general education, the teacher, and ultimately society, since students with exceptionalities are provided with a stimulating environment in which to learn along with peers of their own age. Proponents believe that these students' classmates and their teachers develop sensitivity and respect towards people of all abilities and limitations. The general and special education teachers have the opportunity to collaborate to provide individualized instruction for all students.

Resource (aka, “pull out”)—Resource programs are those in which students who qualify for special services are “pulled out” of their regular classrooms for a designated period of time that is less than 50% of the student's academic school day. These programs can look very different at the elementary and secondary level, given the difference in schedule structures. A “Resource Teacher,” then, would have a class of students with special needs from across the campus in which they are given more individualized instruction around the same objectives that are being taught in the regular education classrooms.

Self-contained—There are various permutations to the self-contained classroom: self-contained mild/moderate, self-contained severe and profound, or self-contained behavior modification, to name a few. Typically, self-contained classrooms are composed of a small group of students whose needs could not be met appropriately in the regular education setting. Students in self-contained classrooms may have significant learning disabilities, their emotional needs may inhibit their ability to function within regular classes, their mental functioning may require close care and support, or they may have multiple disabilities that require coordinated intervention from a variety of sources. The relatively low teacher-to-student ratio usually found in self-contained classrooms (and additional support service providers) allows each student to get the support he or she requires.

While these three special education models—mainstreaming, inclusion, and self-contained—do not represent the entire range of models used by schools today, they do represent three of the more common settings.

The Individualized Education Program (IEP)

An IEP is the all-important document that outlines a student's learning goals and the accommodations and modifications that the student's teachers will use to reach those goals. As a new teacher, you will undoubtedly encounter your first IEP soon after stepping foot on campus. You will be well-served to invest some time before that initial encounter learning to navigate this key component of special education instruction.

What is an IEP?

The IEP is usually a several-paged document that lists any special services a child is to receive, goals the child is expected to achieve in one year, and objectives or benchmarks to note progress. Take a few moments to examine the **Sample IEPs** provided in the Toolkit (pp. 81-87). Also included in this toolkit are some **Sample IEP Goals** to acquaint you with the phrasing (pp. 88-93). ✖ You'll notice

Many new, as well as experienced, teachers are not even aware of their students' IEPs. An IEP lets the teacher know what accommodations they should be making for a student each day. The IEP should direct instruction.

Serapha Reed, New York '95
5th and 6th Grade Math

that while the formats are somewhat different, the basic components of each are the same. According to law, the IEP must include the following:

- A statement of the student's present levels of performance, including the student's strengths and needs,
- A brief description of the student's disability and special needs and how that disability affects the child's involvement and progress in the general curriculum,
- A statement of measurable annual goals and short-term instructional objectives for the student,
- A statement of the specific educational services needed by the student, including related services, and the extent of his or her regular (or mainstream) classroom participation,
- The projected start date and anticipated duration of educational services for the student, and
- Criteria, evaluation procedures, and schedules for determining the student's progress (which must be reported at least as often as the progress of student's non-disabled peers).

Once the IEP has been developed for a student, some individual is responsible for maintaining and implementing it. In some elementary settings, the special educator who teaches the student for all or part of the day is generally responsible for ensuring that the student receives the program outlined in the IEP. In a secondary setting, schools often have special education administrators (who may also be special education teachers) who maintain and manage the IEP process.

It is important to note, however, that while an "official" special educator is responsible for ensuring that students receive services, the general educator—who must be familiar with the IEP and its goals—is also responsible for teaching IEP goals and objectives and for modifying and accommodating according to the IEP. (This division of responsibilities may be outlined in the IEP.) If the student requires particular support services (such as speech therapy, for example), but can be completely mainstreamed into a general education class, sometimes the support service provider manages the IEP.

One of the best things a teacher can do for a student who is awaiting referral for an IEP is to monitor carefully, and document, document, document. School support personnel need proof of all the strategies that are used prior to being able to make decisions about giving a student a modified school program. It is critical to keep track of everything from individualized assignments to peer mentoring or even a seat change.

**Kate Farrar, Los Angeles '94
Principal
Camino Nuevo Charter Academy**

How is an IEP created and by whom?

IEPs are developed and maintained by a multi-disciplinary "IEP Team" that meets at least once per year. That team includes:

- (1) representatives of the local school district (other than the student's teacher) who are qualified to provide or supervise special education and who are qualified to allocate the services of the school and/or district,
- (2) professionals in relevant support services (e.g., speech or occupational therapy),
- (3) the student's teacher (including both the student's general education teacher and any present or future special education teachers),
- (4) the student's parents or legal guardians,
- (5) any individuals invited by the student's parents (e.g., a lawyer or other advocate), and
- (6) the student, when appropriate.

For students whose exceptionality has been identified for the first time, a member of the evaluation team or an individual knowledgeable about the evaluation procedures and who is qualified to interpret testing results must attend this meeting. A school district administrator may be responsible for coordinating

Differentiation

and managing the initial meetings to develop the IEP, or that responsibility may fall to the special education teacher him or herself. In most cases, the student's special education teacher assumes responsibility for actually writing the IEP. The student's parents and specialized professionals remain involved throughout the process of creating the IEP and may propose particular goals for the students or specific strategies for reaching these goals.

A child will continue to receive special education services if the team agrees that the services are needed. A re-evaluation is completed at least once every three years to determine whether or not the child continues to be eligible for special education services, and what services he or she needs.

For more details about the IEP and the various regulations governing IEPs, see the "Guide to Special Education Paperwork" in the Special Education Supplement and Toolkit.

To Refer or Not to Refer

The decision of whether to refer a student for formal evaluation is not always an easy one. A teacher may be torn between his feeling that a student needs special help to learn and his concern that the school's special education system may not actually be the best answer to the problem. Or, a teacher may have full confidence that the school's special education program could dramatically improve a student's achievement, but the student's parents vehemently object to formally labeling their child "special ed." Unfortunately, special education placement may carry a severe stigma among students, and a student himself or herself might resist the referral. These are difficult questions that we could not begin to answer here in the abstract. Each teacher must do his or her best to consider all of these various factors in determining what is in the student's best academic interests.

How does a student enter the special education system in the first place?

Although different districts may use somewhat different procedures for bringing students into the special education system, the details in the federal mandates described above created some consistency across the nation. Generally speaking, parents, school personnel, students or others may make a request for evaluation to a school counselor or special education coordinator. (If a parent requests an evaluation to determine whether their child has a disability and needs special education, the school district *must* complete a full and individual evaluation to determine the students' special needs, if any.) The school district completes an evaluation.

Note: New laws also require that teachers provide evidence of what they have done to help a student to be successful prior to referral. A team of

qualified professionals and parents will review the results of the evaluation, including an examination of student work samples provided by the teacher, and determine if the child is eligible for special education services.

According to IDEA, there are thirteen categories of disability that will qualify a student for special education services, if the disability affects the child's performance in school. Those are autism, deafness, deaf-blindness, hearing impairment, mental retardation, multiple disabilities, orthopedic impairment, other health impairment, serious emotional disturbance, specific learning disability, speech or language impairment, traumatic brain injury, and visual impairment, including blindness. Students with Attention Deficit Disorder and Attention Deficit/Hyperactivity Disorder (ADD and AD/HD) may qualify for special education services under the "other health impairment" category. (For a closer look at these categories and accommodations appropriate to each, see Chapter Three of the Learning Theory course text.)

How does a student leave the special education system?

There are several ways that students might exit a school's special education program. First, based on a whole host of factors, if the IEP team determines that the student no longer needs the special education services, and the students' parent or guardian agrees, then the student can exit the system. Second, students might "test out" of a program. That is, the student might perform at a high enough level that the

discrepancy between his IQ (as a measure of potential) and his performance is no longer great enough to qualify for special education. (This “discrepancy definition” is a common component of definitions of learning disabilities.) For many students, such an exit from the special education system is in fact the ultimate goal. Finally, some students exit the special education system because parent or guardian refuses services for the student.

Accommodations and Modifications

In the most literal sense, the changes you have to make to adjust to a student’s special needs are simply examples of the principles of “differentiation” discussed in the previous chapters. Your job as a teacher of a student with special needs is to design your instruction to meet those needs.

Not surprisingly, the task of developing modifications and accommodations for a student begins with the IEP. In theory (see below), the IEP will contain helpful instructions for adjusting your instruction or curriculum to best accelerate the student’s learning. In some cases, you will find it necessary to develop modifications beyond those listed in the IEP. In that situation, you should first and foremost consult your school’s special education consultants. Your school will likely have excellent resources to help you develop a strategy for instructing students with all ranges of disabilities.

Before we explore a small number of the infinite number of accommodations and modifications that a teacher might consider making to more effectively teach a student who qualifies for special services, we should clarify our terms. Like so many education terms, it is difficult to draw precise definitions of “modifications” and “accommodations,” given the varying ways these terms are used in different districts. However, these two terms do have different meanings.

- **Accommodations.** Generally speaking, “accommodations” do not alter the substance of the curriculum but instead include adjustments to structures and delivery methods (such as seating arrangements, using graphic organizers, etc.) that assist the student to engage in the curriculum. Simply put, accommodations provide an alternative way of accessing the same curriculum.
- **Modifications.** “Modifications” is a term usually reserved for changes made to the curriculum itself (such as when a student is assigned a different book or exercise, for example). Modifications should be used only sparingly, and only if accommodations do not meet the needs of the students.

Thus, note that whether an adjustment to instruction would be an “accommodation” or a “modification” could actually depend on the language of the objective being taught. For example, if the objective was “The SWBAT describe Newton’s three laws,” then an instructional adjustment that allows a student to listen to a tape on that information is an accommodation; it is an alternative means to get to the same information. However, if the objective was instead, “The SWBAT discern Newton’s three laws from a reading of Newton’s notes,” then introducing the tape adjustment would be a “modification”—a change to the objective itself.

General Types of Accommodations and Modifications

The accommodations or modifications that you make for particular students will ultimately be purposeful responses to a particular learning difference experienced by the child. As a result, it is difficult to create general protocols for adjusting your instruction that will apply to every situation.

We can, however, think generally about the various characteristics of instruction that can be adjusted to accommodate a student’s needs or modify a curricular objective. That is, your objectives, lesson plans, instructional methods, and assignments can be differentiated on each of the following axes:

Differentiation

- **Size.** A common method of differentiating instruction is to adapt the number of items that the learner is expected to learn or complete, or to adapt the amount of information that a student is provided at one time. (Of course, in some instances, an appropriate adjustment might be to provide *more* opportunities to practice some skill.)
- **Time.** Another common approach is to extend the time that a student has to complete some task or learn some material. You may find it helpful to individualize the timeline upon which a project is expected to be completed, for example.
- **Input.** A teacher can adapt the way instruction is delivered to students, by using a variety of visual aides, concrete examples, or hands-on activities, for example.
- **Output.** Similarly, you can also adjust the types of output that the students are producing. Perhaps projects, tasks, presentations might be an appropriate adjustment for a student whose disability makes written expression very difficult.
- **Level of Support.** Consider increasing the amount of personal assistance the learner is receiving during a given task. That assistance could come from the teacher or from a peer, for example.
- **Difficulty.** Sometimes, an IEP will indicate that the core difficulty of a skill or problem type should be adjusted for a particular student. Note that this is not “watering down,” your expectations, but is instead a combination of adjustments to the “size” and “time” provided to learn the more complex task. For example, you may have one student continue to practice multiplying two-digit numbers for some period of time while you are moving the bulk of the class on to three-digit numbers.
- **Participation.** Students’ disabilities can sometimes be inextricably intertwined with self-esteem issues. In some cases, too public a form of participation can inhibit a student’s learning. You may want to consider adapting the extent to which, or ways that, a certain learner is expected to participate in a particular lesson.
- **Alternate goal.** This form of instructional adjustment is most likely a “modification” rather than an accommodation. In some cases, pursuant to the IEP it may be appropriate to modify the very objectives or goals that you have set for the class.
- **Substitute curriculum.** Perhaps the most drastic (and rare) of adaptations, there may be some situations where an entirely different curriculum is appropriate in order to meet a learner’s individual goals laid out in the IEP. This is a decision that is made by the committee of persons responsible for the IEP.

I provide different rubrics for different students depending on their abilities, shorten assignments, allow projects instead of written exams, distribute graphic organizers, reteach reteach reteach, and use flashcards created at the beginning of the unit all the way to the present so that my students are not allowed to forget what we have covered.

**Kaitlin Sebben, Greater New Orleans '03
Teacher
Columbia Independent School**

Specific Examples of Accommodations and Modifications

Quite often, IEPs include long lists of potential accommodations and modifications. For example, the IEP itself might require the IEP team to check whether each of some number of alterations or adaptations are being implemented for the student (e.g., reduced assignments, taped assignments, extra time, opportunity to leave class for resource assistance, short instructions, written instructions, visual aids, oral exams, etc.).

Below, we have collected a very small list of sample accommodations and modifications that could be utilized with students, depending on the type of special needs they have. While such accommodations

and modifications are often presented in lists such as this, it is critically important to remember that one does not select a method of accommodation or modification in a vacuum—you should only use one or more of these modifications and accommodations as a well-considered and purposeful response to a student's special needs. For a much longer list of Modifications and Accommodations, see a sample **Accommodations and Modifications Form** in the Toolkit (p. 93). ✖

Also remember that while these approaches are designed to be effective with students with identified special needs, all students may benefit from individualized or modified instructions, regardless of whether they have an Individualized Education Program (IEP).

The physical arrangement of the room

- Place an easily distracted student near the “front” of the room (or wherever you are most frequently) so that you can provide non-verbal cues before giving instructions.
- Stand near the student when giving instructions to the entire class and quietly repeat them to the student afterwards.
- Have the daily routine in writing where it is easy to see.
- Allow time and space for movement between activities.

Your instruction

- Allow a child with delayed reading skills to listen to an audiotape of the book (one that you get from the library or make yourself).
- Record your lectures on tape and allow students to review the tape at home.
- Provide a written outline or graphic organizer of material covered in a lecture.
- Combine visual and oral instruction (e.g., use an overhead while lecturing).
- Individualize assignments for students by changing the length, due date, topic, etc. and break assignments into smaller, more manageable steps.
- Teach specific study skills such as organization and note taking along with content-area instruction.

Assessments

- Allow students to give an oral rather than written report.
- Choose only the most essential objectives on which to assess them (e.g., assess students on the 10 most important spelling words, rather than all 20, or ask them to answer the most important essay question rather than all three). Essentially, strive for quality rather than quantity.
- Provide practice questions for study before a quiz or test, and examples of completed performance tasks.
- Give open book tests or allow one page of notes to be used during testing.
- Vary the format of the test (e.g., include more diagrams to label rather than long lists of matching or large paragraphs of fill in the blank).
- Format tests so that they are clear, readable, and uncluttered. Leave more spaces between lines of text and draw lines on which students can write their answers.
- Read the questions aloud and/or allow the student to respond to the questions orally.
- Provide extra time to complete the test, or give parts of the test in more than one sitting.
- Allow students to retake the test.

Differentiation

Homework assignments

- Modify the length (e.g., require students to only complete the first 15 math problems rather than all 20).
- Allow students to begin homework in school under your supervision, or provide a written explanation of the homework assignment, with an example that they can take home with them, perhaps to work on with parents or guardians.
- Select another student to be a “study buddy” who can clarify the homework assignment by phone.

As mentioned above, this list of accommodations and modifications is by no means exhaustive. And, it is important that these adaptations be implemented purposefully, not randomly. In the third chapter of the Learning Theory course, we will consider one cohesive philosophy for when and how to choose accommodations and modifications when we discuss specific learning differences that you may encounter in the classroom.

Special Needs and Student Behavior

Student misbehavior can have its roots in a student’s exceptionality. For example, some children who have trouble paying attention for long periods of time suffer from clinical disorders known as **Attention Deficit Disorder (ADD)** and/or **Attention Deficit with Hyperactivity Disorder (ADHD)**. In some cases these conditions are treated with medication. However, not all students with short attention spans have ADD or ADHD, and teachers need to develop strategies beyond medication for accommodating these students in the class. Sometimes a teacher and student can brainstorm things for the student to do when he or she needs to move (e.g., squeezing clay, standing up for a little while, walking around the classroom quietly). You should also modify your instruction to help students with special needs meet your high expectations for behavior. You might adapt lessons so that there are frequent changes of activities (for the student with ADD) or incorporate math manipulatives (for students with learning disabilities who have trouble understanding abstract concepts). Sometimes your entire classroom environment may need to be modified to help students maintain on-task behavior. See the *Classroom Management & Culture* course for more on this topic.

Theory Versus Reality in the Special Education System

For the most part, we have painted a picture here of the special education system as it is designed to work. And, some of you will no doubt work in schools with efficient and effective special education programs. Many teachers, however, have found that the reality of their school’s special education programs do not always match the expectations created by the legal structures discussed in this chapter.

While the special education system is designed to admit students with identified needs in an efficient manner, the reality is that it can take months (or more) for students to be integrated into the system. The referral process can be delayed by an inefficient system of paperwork and red tape, a long list of other students waiting to be evaluated, or a legal oversight. The IEP itself can, in some cases, be problematic as well. While IEPs are supposed to provide specific guidance for modifying instruction, sometimes the guidance is frustratingly general and not very helpful, or based on low expectations. In fact, it may fall to you to correct and improve students’ IEPs so that they can receive the modifications that they need in their classes. (You will practice that process this summer.)

Systemic Concerns about Special Education

Few teachers interact with or work in the special education system without recognizing that in addition to the logistical implementation challenges the system faces, there are massive, sometimes disturbing, political forces at work shaping the special education system and affecting students’ lives. Although this chapter is intended to be an introduction to instructional methods for serving special education students, we would be remiss not to flag several of the difficult and problematic issues that you will likely encounter as you lead all of your students to academic achievement.

Many students were “labeled” Special Education at an early age. This label has hindered their possibilities and allowed teachers to use it as an excuse for low expectations. Get to know your students and raise the bar for achievement. They will look very different in person from the documentation you receive in their folders. Do not be afraid to ask them to do more than they have ever been asked to do. My students were going to receive a Certificate of Attendance and a pat on the back when they graduated. Do not be afraid to question the status quo, as you are in charge of the academic future of your students.

Molly Stauffer, South Louisiana '96
Chapter Relations Director
Honor Society of Phi Kappa Phi

First, while you should be actively aware that many students are not identified for the services they need, there is a disturbing over-representation of students of color in the special education system. Although African-American students represent 16 percent of the total student population in this country, they represent 32% of students in programs for mild mental retardation and 24% of students in programs for serious emotional disturbance. A number of states have recently been investigating the disparate numbers of minorities in their special education systems.⁴⁴ While there may be many factors contributing to these numbers, it seems irrefutable that race places a role in the placement of children in special education.

A second disturbing pattern in the special education system that you may encounter relates to the influence of and incentives created by the large amounts of money that fund these services. (On average, \$6,800 is spent per year per special education student in addition to the \$6,200 that is being spent on all students. Source: U.S. Department of Education.) Unfortunately, such monetary incentives are compounded in the under-resourced schools where you will be teaching. Consider, for example, the following observation regarding potential monetary incentives to place children in special education:

The incentive to over-identify low-achieving children as disabled may be especially powerful in schools serving low-income populations. In cases where a child is under-achieving at school because of economic disadvantage, compensatory educational programs are supposed to be funded through Title I of the Elementary and Secondary Education Act (ESEA), not through the IDEA. . . . However, because IDEA funds do not substitute for funding under Title I, students in low-income school districts who are also identified as disabled are effectively “double counted”—once for purposes of drawing down funds under Title I and a second time for purposes of reimbursement for special education services under the IDEA.⁴⁵

Finally, while less of a problem than it once was, the standards-based and accountability reform movement itself has created perverse incentives and pressures on schools that, in some cases, may lead to decisions to over-refer students for special education. The same scholars made the following point:

Until recently, students identified as receiving services under special education were not generally required to participate in statewide assessments. Given that merit raises, promotions, and bonuses for both principals and teachers often ride on the results of statewide exams, the temptation exists for local school districts to raise their scores artificially by excluding the participation of low-achieving special education students in statewide assessments. Although the 1997 amendments to the IDEA were intended to prohibit this practice, three states that recently enjoyed large gains on national reading tests

⁴⁴ U.S. Department of Education; Ladner and Hammons. “Special but Unequal: Race and Special Education.” In Finn, C.E. *Rethinking Special Education for a New Century*. Washington: Fordham Foundation, 2001.

⁴⁵ Horn, Wade F. and Douglas Tynan. “Time to Make Special Education ‘Special’ Again.” *Rethinking Special Education for a New Century*, Progressive Policy Institute and the Thomas B. Fordham Foundation, May 2001, p. 30.

Differentiation

(Kentucky, Louisiana, and South Carolina) also evidence large increases in the percentage of special education students excluded from taking the tests.⁴⁶

Not all teachers encounter these insidious pressures, but many do. We raise these issues not to imply that you should set out to solve these problems on a grand scale, but rather to alert you to some of the complex political concerns that you will probably find yourself navigating on a daily basis for sake of your students.

The Promise of Special Education

Perhaps most important, new teachers should recognize the intentions of the special education system and should work hard to make a less-than-perfect system work to the advantage of students who need special services. While the gaps between how the system is supposed to work and the reality of its implementation can be extremely frustrating to teachers and administrators alike, many students depend on the special differentiation provided by the system. And, if you are like most teachers, you will depend on the system for help in serving your special needs students.

Without a doubt, teaching special education presents special challenges. Those of you assigned to teach special education this fall obviously have a lot to learn. However, as the many corps members who have done so before you would attest, you can succeed. You can bring your students academic success that they may not have known before. For special education teachers—as for all new teachers—it is especially important that you access and take advantage of all of the resources at your disposal, from books to people. You should be able to find the resources you need to serve your students, even if you have to look beyond the walls of your school.

*I saw the dangers of low expectations so clearly in the special education system in my school—there literally were **no** expectations, just because the students weren't expected to pass the test the way others were. It was clear that the students saw it as well—and were frustrated to the point where they just didn't care anymore.*

Crystal Brakke, North Carolina '99
Managing Director of Design Operations, TPSD
Teach For America

As we mentioned at the beginning of this section on special education, those of you not assigned to special education must remember that *all* teachers interact in some way or another with the special education system. Even if you have not been assigned to teach special education, you should expect to have students with special needs in your classroom, and it will be your legal responsibility to meet those students' needs appropriately. More importantly, your students—all of your students—deserve an excellent education. For some of your students who have special needs (whether those needs are officially recognized or not), that will mean adjusting your planning and instruction to ensure that they are meeting their ambitious learning goals. For additional **Resources for Serving Students with Special Needs**, see the Toolkit (p. 94). ✖

III. Supporting English Language Learners

In light of our responsibility to ensure that *all* students are successful in reaching learning objectives, we have considered the fact that students learn differently and that teachers need to modify instruction to account for those differences. In the last section, we considered this question in relation to students who qualify for special education services. In this section, we will introduce instructional modifications and

⁴⁶ Ibid.

support systems for students who are English Language Learners (ELL). (Keep in mind that when you arrive at the institute this summer, you will receive a “ESL/Bilingual Supplement and Toolkit” packet that will elaborate on the material presented here.)

Although not all corps members are assigned to teach in an English as a Second Language (ESL) or bilingual setting, all teachers must prepare for the fact that they will very likely have at least some English Language Learners in their classroom. Moreover, the instructional strategies highlighted here are effective for a broad range of students, regardless of their language facility or needs.

Education for English-Language Learners—A Primer

Given the public and legal debate over how students of limited or no English-speaking skills should receive instruction, it is not surprising that there are a variety of bilingual and English language programs used throughout the country. In some schools, a “bilingual education” approach is used, which means that students are instructed in both their first language and in English. The theory behind those programs is that students will ultimately have enhanced literacy and learning skills if they first obtain some reasonable level of proficiency in their first language. In a recent study, the National Research Council’s Committee on the Prevention of Reading Difficulties explained that novice English-speaking readers have some basis for recognizing the fruits of their labor. That is, they associate the revealing of meaning with the reading process. Non-English speakers have much less basis for knowing whether their reading is correct because the critical meaning-making process is short circuited by lack of language knowledge. Giving a child reading instruction in a language that he or she does not speak can thereby undermine the child’s opportunity to appreciate reading as an exciting and powerful form of communication. The National Research Council recommended, therefore, that wherever possible students be provided initial reading instruction in their first language.

Of course, not all schools have the resources or the critical mass (or the political will) to have full-blown “bilingual education” programs. And many older students arrive at school with some basic proficiency in their first language. Thus, there is another approach for English language learners called English as a Second Language (ESL). ESL programs, unlike bilingual programs, focus primarily on teaching students English. In fact, under traditional ESL modes, the students’ native language is largely irrelevant to the teacher and the classroom. An ESL teacher should be able to teach a room full of students who speak a number of different languages. Many corps members encounter just such a situation. Stephen Ready, RGV ‘92, for example, teaches ESL in the Bay Area, and at various times he has had as many seven languages represented in his classroom.

In the Toolkit, we have compiled a table that describes the different types of bilingual and English as a Second Language programs, the linguistic goal for students in the program (i.e. in what languages they should gain proficiency), and the language of instruction used in the program. See **Various Programs for English Language Learners** in the Toolkit (p. 95). ✖ You might also want to check out the **Brief History of ESL and Bilingual Education** in the Toolkit (pp.96-97). ✖

Instructional Modifications for English Language Learners

As mentioned earlier, whether you are assigned to a bilingual or ESL classroom or not, you are likely to have students who are English language learners. In the most literal sense, modifying instruction for ELL students is simply an extension of the principles of “differentiation” discussed in the previous section of this chapter. Your responsibility is to modify your teaching strategies to accommodate your students’ language development. That may include helping them build their

The first thing to remember is to ask for help. You cannot possibly know everything there is to know about your ELL students.

Brandy Nelson, New York ‘97
Assistant Principal, Needham B.
Broughton HS Discipline Special Education
and Student Activities

Differentiation

speaking, writing, and reading skills in English while also increasing their learning in various content areas.

While you will explore in more detail various techniques for instructing ELL students this summer, here we have compiled a quick survey of some of the basic approaches that teachers find effective. These techniques fall generally under three over-arching principles of ELL instruction:

- (1) Maximize the accessibility of your lesson,
- (2) Respectfully and strategically encourage, correct, and assess English language learners, and
- (3) Proactively value and embrace your students' language and culture in your classroom.

(1) Maximizing the Accessibility of Your Lessons

Constantly build context for new terms and ideas. Good ESL teachers can hear their lesson the way their students hear it. These teachers are constantly modifying their instruction so that someone learning English can understand the concepts being discussed. Simplifying concepts, expanding on new ideas, and providing students with clear definitions and comparisons may make it easier for students with limited English proficiency to understand what you are teaching. As an example, consider the following implementations of these strategies for a history class, all of which highlight for the ELL student the definition or context of unknown terms.

- **Simplification** - "The government's funds were depleted. It was almost out of money."
- **Expansion of ideas** - "The government's funds were depleted. It had spent a lot of money on many things: guns, equipment, help for the homeless. It did not have any more money to do anything else."
- **Direct definition** - "The government's funds were depleted. This means that the government had spent most of its money."
- **Comparison** - "The government's funds were depleted. If you had five dollars and you went to the store and spent your money on candy then your funds would be depleted, too."

Use strategies to maximize students' comprehension. Good ESL teachers will employ a range of techniques to increase their students' comprehension. Some of these include:

- **Clarification checks** – Checking for understanding is important for all students including ELLs. Some of your students may be shy or wary of letting you know when they are lost. If you continuously check for comprehension you are less likely to leave students behind. An example of a comprehension check might be a quick quiz at the end of class allowing you to calibrate where your students are. Also try to look for nonverbal responses from your students to gain a sense of the level of comprehension or confusion.
- **Pacing** – Vary both the speed and of your speech. Recognize that for ELL students, comprehension can increase if you speak more slowly. Be aware of the speed with which you and other students are speaking.
- **Modify your speech** – Speak slowly, enunciate clearly, and be sure to allow wait time before soliciting answers to questions. Break complex sentences down into more simple sentences, and avoid the use of idioms.
- **Use visual aides to clarify key concepts** – Graphic organizers, pictures, graphs, objects, and maps may be a better way to introduce new knowledge or skills to ELL students, as these tools are less language-dependent. The use of media, manipulatives, and other modalities increases the ways your students can follow what you are saying.

- **Record your lessons on tape and make these tapes available to your ELL students.** Students with limited English proficiency may have an easier time following what you say if they can stop a tape, rewind, and listen to your words at their own pace.
- **Use demonstrations or role-plays to show and act out new ideas.** If your ELL students can see the new material in practice or participate in an activity that is less dependent on their English skills, they are more likely to understand the new material. Perhaps your class would act out an historical scene. Perhaps your students would group themselves in numbers to “act out” certain math equations. These sorts of kinesthetic methods are especially important for your ELL students.

(2) Respectfully and Strategically Encouraging English Language Learners

Encourage students to speak, but do not force them. Students with limited English proficiency are often self-conscious about their English speaking skills. Moreover, some research indicates that language learners learn more quickly if they have a period of quiet listening to become familiar with the sounds of the language. (Researchers call this phase the “silent period.”)

You should be sensitive to these students’ discomfort in speaking, even while encouraging them to participate in class and practice their English-speaking skills. More importantly, work to create an environment where ELL students feel comfortable speaking in class and making mistakes. As errors are an essential part of language learning, it is important to create an environment in which students do not feel uncomfortable when they make a mistake in English.

Correct speaking errors indirectly or by modeling appropriate language.

Although you want students to feel comfortable making mistakes, it is also important that you correct students’ errors so that they can continue to improve. How you correct those errors, however, is critical to students’ success. Model the appropriate language in your response, rather than directly correcting them, and you will help the student identify mistakes without embarrassment. If they mispronounce a word, use that word in your answer to them and emphasize (slightly!) the correct pronunciation. If they make a grammatical mistake in their question or statement, work the correct grammar into your answer.

I would have individual conversations with my ELL students, and identify one place outside of our classroom where they would speak English – once – that day after school. And we would rehearse what they would say.

**Allison Ohle, New York ‘98
Graduate Student**

Use cooperative groups. Cooperative learning has special benefits for students with limited proficiency in the English language. In these groups, ELL students may be able to call on their group members to ask for clarification. In addition, these groups may provide the students with a comfortable setting in which to practice English and contribute their thoughts and ideas. These opportunities may not present themselves in whole-class activities where English speakers may dominate.

Create an environment where help is readily accessible. If students are not always working in cooperative groups, you might want to assign “buddies” to ELL students who can repeat directions or answer basic questions. If possible, these students should be proficient in both English and the ELL student’s native language, but that is not necessary.

Differentiation

Use appropriate assessments. It is important that you create assessments that reflect your students' mastery of the material being covered and not only their English skills (unless, of course, the purpose of the assessment is to evaluate their English skills). On traditional assessments such as tests and quizzes, it may be appropriate to read the questions to the student and allow them to respond verbally. You also, for example, might want to have a higher percentage of diagrams to label rather than multiple choice, fill-in-the blank, or essay questions.

(3) Proactively Value and Embrace Your Students' Language and Culture in Your Classroom

Show ELL students that you value their native language(s). Your students' native languages are important components of their identities and cultures, and it is important to show that you respect and value those languages, cultures, and identities. You can demonstrate your respect for your students' language by using it yourself when appropriate, and/or making an effort to learn phrases of their languages if you do not already know them. You might place multilingual signs around the room (e.g., "class library," "homework," "today is Monday," "welcome to math class"). You might allow ELL students to teach words from their languages to the native English speakers in your class, or you could assign homework that encourages students to use their native language to interview community members.

Use rich and varied resources from your students' cultures. As the National Board of Professional Teacher Standards stated, "Accomplished teachers of linguistically and culturally diverse learners select, adapt, create, and use rich and varied resources." You may want to seek out culturally relevant books or literature, or bring in a series of speakers who share a cultural background with your students. Moreover, on a day-to-day basis, you should be aware of and sensitive to the cultural backgrounds of the students you are teaching.

The most difficult thing about teaching older ELL students is balancing the fact that the students' English is so low with the fact that they can't be treated like four-year olds. I am amazed by how much I judge somebody, as a reflex, by how they speak. The students speak on a third grade level, which can suck you into teaching them like a third grader, but they are nearly adults.

Thomas Richards, DC '01
High School English

Develop a diverse resource base. Select resources that will expand your students' awareness and knowledge of other cultures and backgrounds, and show the contributions of individuals of many cultures and languages. One common challenge in this regard is finding diverse materials that are complex and engaging enough conceptually for your students but simple enough linguistically for your students to comprehend. For a diverse list of excellent multicultural books to use in the elementary classroom, see **Five Authors' Favorite Multicultural Books** in the *Elementary Literacy Toolkit*. ✖

Avoid erroneous resources. Curriculum materials unfortunately often misrepresent students' backgrounds and history in their portrayals of the social, political, and historical contexts of both indigenous and newly arrived ethnic and cultural groups. Teachers of linguistically and culturally diverse classrooms or groups should critically review the curriculum they receive and, if necessary, enrich and supplement the materials to include the perspectives of members of your students' cultural groups.

For additional resources on modifying instruction for ELL students, you might want to visit the websites provided in the Toolkit's list of **ESL and Bilingual Resources on the Web** (pp. 98-101). ✖ As a general matter, your English language learners will need the same intensive instruction that all of your students

need. Your success as their instructional leader will rest on your careful planning and purposeful instructional choices as you maintain your high expectations for their academic success.

At the same time, like all students, students in ESL and bilingual programs come to you from unique backgrounds and with unique needs. Aside from the more obvious points that a student learning English as a second language is probably not familiar with many of the idioms and formulaic expressions of the English language, teachers of ELL students need to emphasize the key strategies described in this section. They should maximize the accessibility of lessons, respectfully engage students in their English learning, and draw from a diverse and cultural relevant pool of resources.

Conclusion and Key Concepts

In this chapter, we first examined the general notion and principles of “differentiation”—the individualization of instruction for various learner profiles. Differentiation is inevitably a formidable challenge for new teachers and veteran teachers alike. And yet, a teacher’s responsibility to lead all of his or her students to ambitious academic goals makes the hard work of differentiation absolutely necessary.

As you have seen here, students in special education and students who are learning English represent particular populations that merit unique sets of differentiated strategies. All teachers, no matter what their ultimate teaching assignment, will most certainly encounter students in need of these various instructional strategies.

This summer, you will learn more about these populations and will receive the Special Education and the Bilingual/ESL “Supplement and Toolkit.” From this initial look at these areas of differentiated instruction, however, you should be familiar with the following concepts:

- Your classroom will undoubtedly include students on a wide range of academic levels. “Differentiation” refers to a teacher’s acknowledgement of those different levels, requiring thoughtful modification of instruction so that all students will master the objective. Among the techniques teachers use to differentiate their instruction are tiered assignments, learning centers, independent projects and varied questions.
- Differentiation is also the foundation for serving students with special needs. All teachers should be familiar with the referral and evaluation process, the means of determining a student’s eligibility, and the IEP development process. Most important, all teachers must work to differentiate their instruction to meet each student’s needs.
- English Language Learners are one population of students who require special kinds of differentiated instruction. Among the techniques that should be used to differentiate instruction for students learning English as a second language are maximizing the opportunities for context clues, allowing for a “silent period” when students do not have to speak English, modeling appropriate language, valuing students’ native language, and using appropriate assessments.

Differentiation

Every child is different, but all children can learn—if only we address their needs. It may take research, patience and “out of the box” thinking, but success is definitely within reach. Molly Eigen, Rio Grande Valley '99 and now a Teach For America Program Director in Phoenix, demonstrates this sense of possibility:

When I began teaching in a classroom that included students labeled with varied disabilities including learning disabilities, mental retardation and emotional disabilities, I was told that none of them could retain information or understand higher order thinking. Looking at their testing, I was amazed that I had 17 year old students who could not read, meaning that in 11 years of education they had not retained phonics or any level of reading instruction. I quickly realized that when I approached the students using traditional ways of teaching (lecture, worksheets, independent work), they would not retain what I was teaching, but when I began doing kinesthetic activities, making clear connections for students, having them chant, having them problem solve, and basically approaching every objective from every angle several times, my students began to retain information and their skill levels quickly increased. Once they began this process and realized that they were capable of much more than they and others had thought, their confidence picked up. They became more invested in their learning and therefore their retention increased even more. Ultimately, these students were no less able to learn, but needed to learn in different and more varied ways.

Recording Results Effectively

Grading Supplement

I. Planning Your Approach

II. Tabulating Grades

III. Reporting Results to Maximize Motivation

Introduction

Your grading system represents the final stage of feedback—the official reporting of student progress to students, families, and the school administration. In addition to communicating a child’s level of proficiency, grades serve as the basis for a myriad of decisions affecting children’s lives, including grade-level promotion, placement in remedial or advanced classes, college admissions, scholarships, and prizes. Therefore, it is your professional obligation to collect enough data on student performance to determine a fair and accurate summative evaluation of each student’s performance.

One key purpose of an effective grading system is to measure how well your students have mastered learning goals. This means developing scales that help you distinguish between varied levels of student performance—and between tasks of varied importance and weight to allow all of your grades to come together into a composite reflection of student achievement. You should map out in advance all the formal assessments you plan to utilize during a grading period to ensure that you will have enough data regarding all objectives when determining a grade. Ensuring that academic grades reflect student learning also means deciding how to separate academic performance from non-academic performance, even though you may be tempted to use the threat of lowered grades to discourage certain student behavior.

You should also be conscious that feedback and grades can have motivating or debilitating effects on students, and your policies should be designed to take the mystery out of assessment and help students see that hard work does lead to improvement. That, along with ensuring that grades accurately portray a child’s progress to you, students, parents and decision-makers, will lead to an effective system. Here are some concrete suggestions to get you on your way:

I. Planning Your Approach

a. Identify pertinent grading policies and schedules. Before creating your own evaluation system, be sure to examine any school or district-wide grading policies that you will need to abide by (e.g., the grading scale utilized by the school system or the report card format). Schools and districts may have strict policies regarding report card or end-of-term grading, but you will probably have greater latitude in your use of grades at other times of the year. You should also be familiar with the grading calendar. Be aware of when grades or progress reports are due, so you can schedule all applicable summative assessments before that time.

b. Avoid the “curve.” When you do have the liberty to design your measurement systems, grading should always be done in reference to learning criteria, never on the curve. Grading on the curve pits students against one another and converts learning into a game of winners and losers—with most students falling into the latter category. On the other hand, grading in reference to learning criteria sends the message to students that the goal is to learn the material and to fulfill their own potential.

Recording Results Effectively

c. Ensure that your grading systems account for differences in performance. In general, your grading scales should be refined enough to make detailed distinctions between the quality of work that students submit. A system that measures Karina's performance at 79 and Macedonio's performance at 72, for instance, is more effective than one that gives both students a C. Grading systems, however, should provide more than just a simple score representing the overall performance of students. Effective grading should also produce an accurate report of how students are achieving on individual learning goals or objectives. This detailed information provides a more nuanced picture of the differences between student performances and is vital for making informed instructional decisions that target student needs. Having this level of detail in your grading systems also allows you to communicate to students exactly where they are strong and where they need to improve.

In the chapter on Assessment, you saw how teachers develop rubrics, anchor papers, and other tools to help evaluate projects, term papers and other assignments that may rely on a more subjective means of judgment. You also saw how teachers develop a sliding scale of evaluation for individual test questions since open-ended tasks are bound to yield responses of different quality. Remember that the best teachers are able to clearly articulate what different levels of student work will look like as they create their grading tools. Thus, instead of grading as you go along, you should always design a standard method of evaluating work *before* you administer any assignment that you will grade.

d. Ensure that your grading systems provide consistency.

Receiving an 85 should represent the same quality of work on every assessment throughout the semester. This especially becomes a concern when teachers incorporate rubrics into their grading system, and a three on a four-point scale suddenly becomes a 75 percent. Remember that your grading system should tell you the extent to which students are mastering objectives, so if a three on a rubric represents correct punctuation 85 percent of the time, make sure you make the applicable conversions. Otherwise, you will skew your averages.

e. Ensure that your grading systems take into account the relative weight and importance of different assignments. Simply adding up the number of correct answers on a test and dividing by the number of total questions to calculate a percentage does not usually yield an accurate score. Nor does simply averaging a student's scores from all of the assignments of the marking period yield a reliable composite grade. You will use a variety of assessment tools (journal entries, tests, projects, class participation) as evidence of your students' mastery of your curriculum. Each question or assessment should be given a weight corresponding to:

- The portion of learning goals covered by the question or assessment
- The material's relative importance
- The time you spent teaching that concept (ideally, similar to the importance)
- The number of parts or sections in the task (a question that asks students to perform three actions should be worth more than a multiple choice question)
- The relative difficulty of the task (higher difficulty merits higher points)

Weighting Questions

Consider a test for students expected to compare the American and French Revolutions. You may have three sections, each weighted to represent their relative importance and difficulty.

- Fill-in-the-blank questions that require students to recall terms, names and dates: 25 percent (10 questions, 2.5 points each).
- Short-answer questions that require students to explain various events: 30 percent (6 questions, 5 points each).
- An essay question that requires students to compare the relative success of the two revolutions: 45 percent (1 question, graded on a 5-tier rubric).

On a test, that means that certain questions and sections will be worth more than others (see table, *right*). Over the course of a marking period, certain assignments will carry more weight, based on the same criteria. It is common practice to calculate grades on a “total points” model, where each assignment is worth a certain number of points out of the total number available during that marking period. A test worth 40 percent of the marking period’s grade could be worth 80 points, an essay worth 20 percent could be worth 40 points. This only underscores the importance of planning assessments ahead of time; only then will you know how to assign relative weights to various tasks because you will be considering each assignment in relation to the others.

While every teacher approaches his or her tabulations differently, effective teachers have a rationale behind their weighting systems. Michele Cadwallader, Delta ’97, teaches French and weighs daily work 25 percent; tests, quizzes, major projects and performances 50 percent; and participation 25 percent. “I believe a teacher should thoughtfully consider these percentages,” she says. “This system accurately reflects what I esteem as most important in a foreign language classroom. Tests and quizzes are high because unless I know that students know the vocabulary, I cannot move on. Everything builds on what has previously been learned. Participation is also quite high because approximately 40 percent of my state standards refer to oral and aural work.” Given that there is no across-the-board consensus on what these percentages should be, and because these decisions are largely dependent on your subject matter, we’ve included a number of other **Sample Grading Systems** in the Toolkit so you can see how different corps members approach this task (pp. 102-109). ✖

II. Tabulating Grades

a. Grade accurately and consistently. While it is vital to plan your approach to grading, this is only the first step. The best of plans will not lead to success if you do not appropriately implement or execute them. Thus, it is imperative that you grade carefully and accurately. Make sure that you are following your plans to evaluate student performance in a fair and thorough manner. Otherwise, you will get unreliable data that won’t help you to move students forward. Also, remember to grade consistently enough so that you can track and communicate student progress on a frequent basis. If you don’t grade the assessments you administer, you won’t be able to understand your students’ successes and struggles to make informed adjustments to your instructional plans.

b. You can select which assignments to grade. A common question from beginning teachers is, “Do I have to grade everything?” If you have asked your students to complete a task, you should examine their work as a gauge of their progress and provide feedback. Yet determining an exact grade on every single assignment is probably not a good use of your time. For certain tasks, some teachers will simply make notations in their records of who seems to need more practice on specific goals and who demonstrates particularly strong effort (giving a check-plus versus a check on homework, for example). In some classrooms, the teacher reviews the homework aloud with the class, and students self-monitor their progress and ask questions on points they do not understand. Here, completing the homework and understanding the correct answers become prerequisites for success on subsequent assignments that are graded formally.

c. Separate non-academic performance from your tabulations. As different educators share their grading systems with you, you will notice that some teachers deduct points from a child’s grade because of tardiness, late assignments, or misbehavior, despite the fact that the student demonstrates academic performance far above the resulting average. These teachers wish to teach their students the responsibility of completing assigned tasks on time, being neat and organized, and following classroom

Recording Results Effectively

rules. They reason that it would be unfair to give a student who completes work promptly the same grade as someone who does not. This is an understandable rationale.

Remember, though, that altering grades in this way makes them less useful tools for others to know how well a child has performed on the objectives you've taught. It will be impossible for anyone outside your classroom to know the reasons and meanings behind a single number or letter – a major problem because grades are used to make important decisions about placement and promotion. It is more appropriate and effective to address the issues of why students do not behave properly or turn in assignments in the first place, rather than assign grades that are inaccurate measurements of a student's skills. Some schools are now moving toward a dual reporting system in which one grade reflects a student's mastery of academic material and another reflects personal responsibility and effort. Use this or some other notification system (written quarterly reports or parent conferences, for example) to indicate attitudinal problems or successes, meanwhile leaving the academic grade unadulterated and reflective of a child's level of academic mastery and progress.

d. Consider students with special needs. For students with special needs, the decision of how to balance effort with achievement becomes particularly complicated. A student's special needs may require him or her to work a great deal harder to attain only modest gains in performance. If this effort is not recognized, the student may become frustrated and lose sight of the importance of working hard. One strategy is to use a scale of "not working, working, making progress, mastery," which places the focus on effort, but also indicates whether the performance objective has been met.

e. Consider margin of error when evaluating borderline cases for students about to fail your class.

Because of the limited number of questions on any test, the subjectivity of certain grading practices and the "bad day" factor (a student might have had a fight with a peer right before taking a crucial test), you should acknowledge the margin of error in any assessment. For a borderline case of a student on the cusp of failing and passing your class, you should seek out additional proof that the child has not mastered objectives before failing him or her.

Instead of giving a student a "deadly zero" for a missed assignment (potentially knocking their average down nearly 20 points), some teachers will hound the child until he or she hands it in, enlisting parents if necessary; it may come to light that the child was capable of completing a project but did not understand the expectations. Ultimately, it is acceptable to fail students if they have demonstrated that they have not adequately mastered the material. (The lowest grade some teachers and schools will give is a 50, to avoid complete decimation of someone's average.) It is not constructive to allow the mathematics of averages and zeros to fail a student who has demonstrated his or her proficiency in other ways.

III. Reporting Results to Maximize Motivation

a. Track information carefully and consistently—and use it to help students see their growth. In order to know whether students are learning, you must do more than just grade assignments. You also need to track and analyze the data you collect. Without regularly entering student data into your tracking system you will be unable to know if your instruction has been effective or if you are on track to meet your goals. Tracking allows you to analyze student results, notice trends in student mastery, and adjust your actions accordingly. Because of this, it is essential for successful

Each quarter, I hang up our class's language arts and math objectives. This provides a strong visual reminder that reinforces the importance of showing up prepared to learn, and also to track the class's academic accomplishments. As we check off objectives mastered by the class, we also highlight those objectives that we needed to revisit for extra reinforcement.

**Nikeya Bridges, Greater New Orleans '00
4th Grade**

teaching. Many new teachers do not track frequently enough because they forget its importance and fail to make it a priority amidst all of the other things they need to accomplish. To avoid this from happening, you should commit to making tracking a habit. Schedule time each week to record your students' performance on the assessments you administer. Doing this will allow you to clearly view student progress toward your goals and to adjust your short and long-term planning.

When filling out report cards, you may find it useful to draw evidence from each major component of your instructional program (e.g., homework, class work, participation in class discussions, and notes). By tracking progress in all areas of your class, you send a message to your students that all that you ask them to do is valuable and important in their learning. It is also important to keep this information neat and organized, as parents and principals may ask to see your grade book. The Toolkit contains a **Sample Computerized Gradebook** (p. 110). ✖ While you should track a variety of information, you should also make sure that you have a tracking tool that highlights *only* academic mastery and progress without other student information (like attendance, homework, etc.). It is important to have a place where you can exclusively view student and class academic progress toward your big goal. This tool serves as your guide to making important instructional decisions, so it needs to be clear and easy to interpret. Separating academic mastery data from additional student information will allow you to view this clear picture of student progress on your learning goals. Again, this does not mean that you shouldn't track student participation, homework completion, and other relevant student actions. Just be sure to put this information in a separate document from your main academic tracking tool.

b. Consider students' objective and relative success. Similarly, your reporting system should take into account both the students' level of mastery (where they are) and their relative progress toward the goals (how far they've come) through effective effort. Some report cards, especially at the elementary level, will have separate categories for effort and achievement. In class and with parents, these teachers emphasize the effort grade is just as important as the achievement grade. "I always tell my kids that children who work hard and show growth are the real heroes," one teacher reports. "Going from knowing three of your times tables to eight of them is much more exciting than coming into class knowing nine and leaving knowing nine." We talk more about balancing these two considerations in Chapter Eight, Differentiation.

Annika's Mastery Sheet (U = unsatisfactory, G = gaining proficiency, P = proficient, E = excellent)	Sept. 2	Apr. 18	Apr. 25	May 1	May 8
Identify numerators/denominators	E	*	*	*	*
Explain purpose of fractions	U	P	E	*	*
Represent fractions w/ manipulatives	U	P	P	E	*
Add/subtract fractions (one denom.)	U	G	G	P	E
Find least common multiple	U	U	U	P	E
Add/subtract fractions (2 denoms.)	U	U	U	G	P
Multiply fractions	U	P	P	E	*
Explain reciprocals	U	P	P	E	*
Divide fractions	U	P	P	P	E

While you may be required to record achievement on an absolute scale on a report card every term, you will not want to relent on important objectives just because that marking period is over; some students simply need more time to make gains. The most effective teachers administer multiple, varied assessments on an ongoing basis to provide students with repeated opportunities to demonstrate mastery. By doing this, students can make progress and improve their performance over time. To aide this process, teachers not only record summative scores, but also maintain "mastery sheets" to track student proficiency on individual objectives (see Annika's Mastery Sheet). These sheets show children the growth they've made and the areas they need to improve. They also can serve as the primary, on-going means of communicating progress to parents.

Recording Results Effectively

As you learned in the Unit Planning and Differentiation chapters, effective teachers maintain tracking systems that identify which objectives individual students and the class as a whole have mastered or need help with (see Ms. Cotner's Progress Chart). These lists can indicate when to vary questions during class, what objectives need to be re-taught or reviewed during the year, and when to schedule tutoring (either after school or through individualized practice during class), in order to help students solidify skills until they meet grade-level standards. Final exam grades, which usually carry a lot of weight in a final

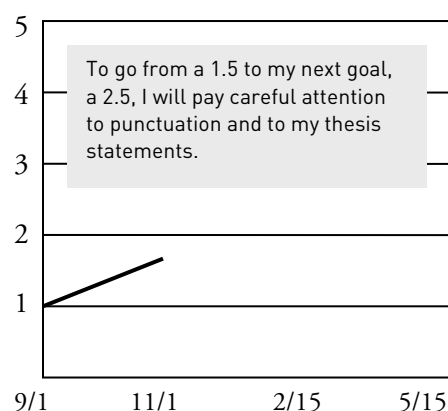
Ms. Cotner's Progress Chart Chapter 2 Section A	<i>Student Mastery Average (in %)</i>							
Overall Class Average: 83%								
<i>Class Mastery Average by skill (in %)</i>		98	90	83	75	70	69	95
Joseph	84	100	90	85	80	70	70	95
Millie	91	100	95	95	85	85	80	100
Raymond	80	100	85	80	75	65	65	90
Destiny	75	90	90	75	60	60	60	95

average, and standardized test scores, which some states link to grade level promotion, will reflect your continued efforts, even if individual marking period grades do not. If one goal of assessment is for students themselves to know where they are in comparison with their goals and what they need to do to make further growth, "mastery sheets" help facilitate this process. The Toolkit contains another example of a teacher's **Teacher's Mastery Checklist**, as well as a **Student's Mastery Checklist** and **Charts that Track Progress Over Time** (pp. 111-114). ✖

Mastery tracking sheets and progress charts allow students and teachers to see both growth and areas of needed improvement.

Just as teachers self-assess to determine what questioning techniques they are using or whether they have been sending consistent messages about expectations, students can assess their performance against a standard to guide their own learning. By learning to ask themselves certain questions, students can develop the important skill of accurate self-assessment. A third grader can learn to ask herself whether a story she writes has a beginning, a middle, and an end. By practicing this skill, she can be her own editor. Similarly, a tenth grade student can learn to ask himself whether he has provided adequate evidence to support his point—be it on a history report, a geometry proof, or a science lab.

The best teachers clearly communicate to students their progress as well as why they have or have not demonstrated mastery on different objectives. One of the best ways to help students compare their work to the ultimate goals is to use a rubric. Chapter 2 explains in detail that rubrics clearly define expectations for student achievement by delineating different levels of quality for a project, paper, or presentation. Rubrics give teachers clear criteria when assessing student



By using the same writing rubric all year, students can graph their progress and set short and long-term goals for themselves, pinpointing an area of concentrated effort for each goal-setting session.

performance, but just as importantly, rubrics give students clear expectations for that performance. If students fully understand the requirements for success, they will be more motivated to achieve. Armed with that information, students can also refer to the requirements throughout the process of creating the final product, constantly evaluating their progress towards the highest level of achievement. Some writing teachers use the same rubric all year and have students chart their progress on a graph (see example), setting goals along the way. Look at **Rubrics** in the Toolkit for more information (pp. 19-21). ✖

My students keep track of their own grades and write their own progress reports, which I sign off on. Each student has a grading folder with a grade-tracker for labs (15% of their grade), miscellaneous work (15%), and unit texts (70%). We enter grades as a class on Mondays. Every few weeks they add up their earned points and divide by their possible points; they then weight each category and add up the totals for a final grade. It helps the students to understand where their grades come from and to accept responsibility for poor grades.

Heidi Hisrich, Delta '03
Secondary Science Instructor
Burns Laboratory School

c. Employ a transparent grading formula.

Ensure that both students and families know what information will be considered in calculating grades, including: the objectives to be learned, the level of performance that you expect your students to demonstrate in order to earn particular grades, and the evidence that you will draw upon to evaluate achievement of these objectives. This shared knowledge of expectations for successful performance will help foster a culture in which students do not depend solely on your evaluation of their work as an indicator of its relative merit, but can independently evaluate their work against the criteria.

d. Report progress in multiple ways. The report card need not be the only time that parents are aware of their child's grades. Require parents to sign tests. Send home regular academic and behavioral updates. Be sure to use regular opportunities to let your students know that you notice their progress by developing growing lists in your classroom of students who have mastered specific learning goals. Use parent phone calls to relay news of consistent effort, or dramatic improvement. It's quite possible that they will have never received such a call before. A **Sample Report Card** is included in the Toolkit (pp. 115-116). ✖

e. Respond to student work with timely and meaningful feedback.

Whatever form your assessment takes, once your students' thinking is visible and you have a clear picture of what students understand, you can then go back and provide helpful guidance and feedback. Effective grading should communicate to students their strengths and weaknesses on different objectives so that they understand their progress toward the big goal and what they need to do in order to improve. You should clearly illuminate to students *why* they have or have not met the bar of mastery on different goals by providing qualitative feedback and explaining your grading system's rationale. Don't simply give students a score without helping them to interpret the meaning and implications of their grade. When you make your grading transparent to students, you allow them to clearly understand their progress and how to improve their performance. This in turn can invest them in taking action to further their own academic development.

Sample Peer Feedback Questions

1. What were the take-home messages of the speech? What details supported those ideas?
2. What did you notice about your classmates' volume, eye contact and tone? How did that affect the speech?
3. What visual aids did the speaker use? How were they helpful to you as an audience member?
4. What would make this speech even better?

Recording Results Effectively

While providing students with positive feedback is important, constant and/or vague praise can cut off discussion and encourage complacency. When students demonstrate progress, praise should be sincere, specific, and focused on their effort. (e.g., “You did a terrific job checking your work and fixing mistakes;” “You provided excellent detail in this story;” “Your comments in class were very responsive to other students;” “It’s impressive to see how closely you are listening.”)

At the same time, mistakes should be viewed as learning opportunities and necessary steps to success, not as indications that the student has failed to learn. During class, you should rarely ignore incorrect answers (though you may want to hear other students’ answers before you address the mistake), and in fact, you may want to spend more time analyzing incorrect answers than you do going over correct ones. Mistakes offer a valuable opportunity to dispel underlying misunderstandings that might also be held by others in the class. Moreover, the process of discussing errors helps every student, even those who got the problem right the first time; in fact, one of the best ways to deepen one’s understanding is through analyzing misunderstanding.

In addition to providing their own feedback to students, teachers can play a significant role in creating an effective dynamic of peer feedback. Peer feedback should be provided in an environment where students value one another’s learning efforts. As much as possible, you should guide students to offer feedback in a constructive manner, and to depersonalize the give and take of feedback so that it is focused on the ideas and not the person. By providing questionnaires that structure students’ comments (see example), peers can learn to be descriptive and objective, rather than biting, in their feedback; they may also be able to apply the lessons they learned from the feedback process to improving their own work.

Conclusion

This supplement aims to help you plan a fair and accurate grading system for your classroom. We have seen that recording and reporting results takes careful planning and thoughtful strategy to ensure that data is reflective of actual student achievement and that students can see their performance as a work in progress that they will continue to hone.

- Plan ahead to create a comprehensive grading system that makes distinctions in quality between different student performances and distinctions in importance between different assignments.
- In order to ensure that your students’ grades are reflective of their best possible scholastic performance, you should separate non-academic performance from your calculation of grades. Your system should also consider students with special needs, as well as the margin of error in borderline cases of promotion or retention.
- When reporting results, motivate students by charting their growth and giving meaningful feedback that informs students of their progress, why they have succeeded or failed to meet mastery, and what they need to do in order to improve.

**BLANK PAGE (FRONT AND BACK): INSERT
COLORED SEPARATOR HERE**

Instructional Planning & Delivery

Toolkit ✂

Internet Links to Regional and National Standards

Standards Specific to Summer Institutes

Texas Department of Education	www.tea.state.tx.us/
Texas State Standards	www.tea.state.tx.us/teks
Pennsylvania Department of Education	http://www.pde.state.pa.us/
Pennsylvania State Standards	www.pde.state.pa.us (from here go to State Board of education, go to Academic Standards)
California Department of Education	www.cde.ca.gov
Los Angeles USD Standards	www.lausd.k12.ca.us/lausd/offices/instruct/standards/
New York Department of Education	http://www.nysed.gov/
New York State Standards	http://www.emsc.nysed.gov/nysatl/standards.html
Georgia Department of Education	http://www.doe.k12.ga.us/
Georgia State Standards	http://www.georgiastandards.org/
Arizona Department of Education	http://www.ade.az.gov/
Arizona State Standards	http://www.ade.az.gov/standards/contentstandards.asp
Illinois Department of Education	http://www.isbe.state.il.us/
Illinois State Standards	www.isbe.state.il.us/ils

Standards Specific to Regional Placements

Arizona	http://www.ade.state.az.us/standards/contentstandards.asp
Arkansas	arkedu.state.ar.us/standards/index.html
California	http://www.cde.ca.gov/be/st/ss/index.asp
Colorado	http://www.cde.state.co.us/cdeassess/documents/olr/k12_standards.html
Connecticut	http://www.sde.ct.gov/sde/cwp/view.asp?a=2618&Q=320954&sdePNavCtr= 45443
Florida	www.firn.edu/doe/menu/sss.htm
Georgia	http://www.glc.k12.ga.us/qcc/homepg.asp
Hawai'i	http://standardstoolkit.k12.hi.us/index.html
Illinois	www.isbe.state.il.us/ils
Indiana	http://www.doe.state.in.us/standards/welcome.html
Louisiana	http://www.doe.state.la.us/lde/saa/2257.html
Maryland	www.mdk12.org
Mississippi	www.mde.k12.ms.us/public.htm
Missouri	http://dese.mo.gov/

Instructional Planning & Delivery

Nevada	http://www.nde.state.nv.us/
New Jersey	www.state.nj.us/njded/stass/index.html
New Mexico	http://www.sde.state.nm.us/standards/index.html
New York	www.emsc.nysed.gov/top/learning.html
North Carolina	www.dpi.state.nc.us/curriculum
Pennsylvania	www.pde.state.pa.us (from here go to State Board of education, go to standards)
South Dakota	http://www.state.sd.us
Tennessee	http://tennessee.gov/education/ci/standards/
Texas	www.tea.state.tx.us/teks
Washington D.C.	http://www.k12.dc.us/dcps/curriculum/curriculum1.html

Comprehensive Sites That Include Every Available State

Achieve	www.emsc.nysed.gov/top/learning.html
Putnam Valley Schools	www.edstandards.org/standards.html

Standards Developed by National Organizations

American Council on the Teaching of Foreign Languages (ACTFL)	www.actfl.org
Mid-Continent Research for Education and Learning (McREL)	www.mcrel.org
National Council for the Social Studies (NCSS)	www.ncss.org/standards
National Council of Teachers of Mathematics (NCTM)	www.nctm.org
National Council for Geographic Education	www.ncge.org
National Academy of Sciences (NAS)	www.nas.edu

Standardized Tests in Your Region

Site	Tests	Grades
Atlanta	ITBS	3, 5, 8
	GKAP	K
	CRCT (criterion referenced)	4, 6, 8
	GHS GT (Georgia high school)	11 – 12
	EOCT (End of Course Tests)	9 – 12
	GA Writing Test	5, 8, 11
Baltimore	SAT-10	1 – 2
	Maryland School Assessment	3 – 10
	Maryland High School Assessment Tests	9 – 12
Bay Area	Test of Academic Proficiency	9, 10
	CAT-6	3 – 12
	California High School Exit Exams	12
	STAR Writing Test	4, 7, 10
Charlotte	NC End of Grade Test	3 – 8
	NC End of Course Test	9 – 12
Chicago	Illinois Standards Achievement Test (ISAT)	3 – 5, 7, 8
	Iowa Test of Basic Skills	3 – 8
	EXPLORE	9
	PLAN	10, 11
	Prairie State Achievement Examination (PSAE)	11
Connecticut	Connecticut Mastery Test (CMT)	3 – 8
	Connecticut Academic Performance Test (CAPT)	10
Denver	Colorado Student Assessment Program (CSAP)	3 – 10
	COACT – Colorado’s ACT	11
Greater New Orleans	Louisiana Educational Assessment Program	4, 8, 11
	IOWA Test of Basic Skills	3, 5, 6, 7
	IOWA Test of Educational Development	9
	Diagnostic Reading Assessment	K, 1, 2, 3
Greater Philadelphia-Camden	Pennsylvania System of School Assessment – Philadelphia	3, 5, 8, 11
	Terra Nova – Philadelphia	K, 1, 2, 4, 6, 7, 9, 10, 12
	NJ state tests (NJ Ask 3, NJ Ask 4, GEPA, HSPA) – Camden	3, 4, 8, 11

Instructional Planning & Delivery

Hawai'i	Hawai'i State Assessment	3 – 8, 10
Houston	Texas Assessment of Knowledge and Skills (TAKS)	3 – 11
	Stanford 9 (HISD only)	K – 11
	Naglieri Non-Verbal Abilities Test (HISD only)	K – 5
	High Frequency Word Exam (HISD only)	1 – 2
	Texas Primary Reading Inventory (HISD only)	K – 2
	Tejas LEE (Spanish Language Version of TPRI) (HISD only)	K – 2
	Developmental Reading Assessment (Alief ISD only)	K – 6
	State Developed Alternative Assessment (SDAA)	3 – 8 SpEd
	Reading Proficiency Test in English (RPTE)	3 – 12 ESL
Indianapolis	Indiana Statewide Testing for Educational Progress-Plus (ISTEP+) – ELA and Math	3 – 10
	ISTEP+ - Science	5, 7
Jacksonville	Florida Comprehensive Assessment Test (FCAT)	3 – 11
	Stanford Diagnostic Reading and Math Test (SDRT/SDMT)	3 – 10
Kansas City	Missouri Assessment Program (MAP) – Communication Arts	3 – 8, 11
	MAP – Science	5, 8, 11
	MAP – Math	3 – 8, 10
	SAT-10	1 – 2
	ACUITY – Communication Arts and Math	3 – 8
	ACUITY – Science	5, 8
	ACT – EXPLORE	8
	ACT – PLAN	10
	ACT – Regular Testing	8 – 12
Las Vegas	Nevada Criterion Referenced Tests (NCRT)	3 – 8
	Nevada Writing Assessment	4, 8
	Terra Nova	1 – 8
	Nevada High School Proficiency Examination	11
Los Angeles	CAT-6/California Standards Test	3 – 12
	California High School Exit Exams	12
Miami	Florida Comprehensive Assessment Test (FCAT)	3 – 10
Mississippi Delta	ITBS	K – 9
	Arkansas End-of-Course Tests (certain subjects only)	9 – 12
	Assessment and Accountability Program	K – 12
	Terra Nova	5, 8
	Mississippi High School Subject Tests	10

	Mississippi State Curriculum Benchmark Test	2 – 8
New Jersey	NJ state tests (NJ Ask 3, NJ Ask 4, GEPA, HSPA)	3, 4, 8, 11
	Newark Scholastic Proficiency Assessment (SPA)	5 – 7, 9
New Mexico	New Mexico Standards-Based Assessment	3 – 9
	New Mexico High School Competency Exam	10
	New Mexico High School Standards Assessment	11
New York	Early Performance Assessment in Language Arts	2, 3
	English Language Assessment	4, 8
	ELE (Spanish reading test)	Bilingual 3 – 9, 9 – 12
	CTB (citywide reading and math)	3, 5 – 7
	Language Assessment Battery – Revised (LAB-R)	Bilingual K – 12
	Elementary Science Program Evaluation	4
	NY State Math test	4, 8
	NYS Regents	9 – 12
	Interim Assessments in ELA and Math	3 – 8
North Carolina	NC End of Grade Test	3 – 8
	NC End of Course Test	9 – 12
Phoenix	Arizona’s Instrument to Measure Standards (AIMS) – Math, Reading, and Writing	3 – 10
Rio Grande Valley	Texas Primary Reading Inventory (TPRI)	K – 2
	Reading Proficiency Test in English	3 – 12
	Texas Assessment of Knowledge and Skills (TAKS)	3 – 11
	End of Course Exams	9 – 12
South Dakota	Dakota State Test for Educational Progress (STEP)	3 – 11
	SAT 10	3 – 8, 11
	Stanford Writing Assessment	5, 9
South Louisiana	Iowa	2, 3, 5, 6, 7, 9
	Louisiana Leap 21	4, 8
	Louisiana Graduate Exit Exam	10 – 12
St. Louis	Terra Nova (reading, math, social studies)	2 – 9
	Missouri Assessment Program (MAP) – math	4, 8, 10
	MAP - communication arts	3, 7, 11
	MAP - science	3, 7, 10
Tennessee	Tennessee Comprehensive Assessment Program (TCAP) Achievement Test (not all schools require this for K-2)	K – 2, 3 – 8
	Secondary TCAP Gateway Exams (required to pass to graduate)	9 – 12

Instructional Planning & Delivery

	Secondary TCAP Operational End of Course Exams (not required to pass to graduate)	9 – 12
Metro D.C.	District of Columbia Comprehensive Assessment System (DC-CAS) - Reading and Math	3 – 8, 10
	DC-CAS - Composition	4, 7, 10

Please note that these tests may vary by year and by districts within each region. Check with your regional office for the most up-to-date and accurate information.

Performance Assessments

A performance assessment provides a student the opportunity to demonstrate his or her abilities and to apply knowledge and skills. Performance assessments are designed to be similar to the challenges that adults face every day, requiring students to make judgments, think of innovations, “do” and “create” rather than recite, respond, or list.

In addition to the performance assessments you see below, your regional office will have CD-ROMs and binders produced by Exemplars ©. Exemplars produces performance assessments for Elementary Math, Secondary Math, K – 8 Science and 5–8 Language Arts and Social Studies. Each performance assessment contains examples of student work at 4 different levels (novice, apprentice, practitioner, and expert) that you can use to evaluate your own students’ work.

Grade Level / Content Area	Sample Performance Assessment
Grades K-2 Language Arts <i>SOURCE: Educational Planning, Portland Public Schools</i>	<p>Your teacher has announced that you will be having a new desk buddy - a student from Florida. You hear she is sad about moving to Maine because it is winter and she feels there will be nothing to do outside. Using <i>The Snowy Day</i> by Ezra Jack Keats and your experiences with winter, come up with some ways you can help your new friend understand about possible winter fun. Be sure to provide reasons why winter is fun besides those provided in the book.</p> <p>While rereading the book, you remember how Peter has a dream. Why do you think he dreamt as he did? Have you had similar dreams? Tell what happened and why.</p> <p>You will be assessed on your ability to understand the story, your ability to reread for details, your ability to come up with ideas for winter fun, your ability to make conclusions and your ability to communicate effectively in a variety of ways.</p>
Grades 3-5 Language Arts <i>SOURCE: Educational Planning, Portland Public Schools</i>	<p>Your friend is going through a difficult time. You have tried talking about the issue but to no avail. After much thought you recall a book you had read where the character went through a similar experience as your friend. How might the book help your friend deal with the problem? What other sources of information or resources could you find to help your friend? What might be some strategies your friend could use? Use your writing skills to compose a letter to your friend as to why he should read the book or resources you have collected. Be sure your letter contains examples from the readings, your feelings and encouragement.</p> <p>As a problem solver, devise a plan to meet with your friend to identify possible solutions to the problem after he has read the materials. Be sure you are considerate of feelings and outline steps you’ll take to make sure your discussion is one of collaboration.</p> <p>You will be assessed on your ability to make informed decisions, your ability to create a letter with complex sentences, your ability to problem solve and your ability to work collaboratively with a peer.</p>
Grades 6-8 Language Arts <i>SOURCE: Educational Planning, Portland Public Schools</i>	<p>Your community has allocated a sum of money to be used to purchase books for the library. Not all in the community are in agreement on how the funds will be spent. Speculate on what the various interest groups might be in the community and what their respective points of view may be. Using your knowledge of literature, write letters to various interest groups, the school board and a letter to the editor advocating for a list of books you have developed and why they should be purchased. Be sure to compose your letters to the audience in such a way to elicit their support.</p> <p>You will be assessed on your ability to create a listing of books to be considered for purchase, your ability to develop letters for various audiences and purposes, your ability to analyze the perspectives of others, your ability to construct support for your point of view using the literature books as references and your ability to communicate effectively in a variety of ways.</p>

Instructional Planning & Delivery

<p>Grades 9-12 Language Arts <i>SOURCE:</i> <i>Assessing Student Outcomes.</i> <i>McRel, 1993</i></p>	<p>George Orwell's 1984 can be described as a work of projective investigation. Working in small groups, your task is to select specific events, ideas, or trends from the 1940's and show how Orwell projected them into the future. Secondly, each person in your group is to select a field of study of interest such as fashion, technology, health, sports, the economy, the arts, politics, etc. and analyze how current events, trends, and ideas are causing disagreements, agreements or confusion in the field. You may want to use books, magazines, research articles, etc. as resources. Be sure you are aware of the beliefs and biases being presented. Use information and points of view you have collected to develop a scenario for the future that makes sense and is plausible based on the extension of continued trends, ideas or events.</p> <p>You will be assessed on your ability to identify and understand basic beliefs in a text, your ability to identify and extend predictions, and your ability to communicate effectively in a variety of ways.</p>
<p>Grades K-2 Social Studies <i>SOURCE:</i> <i>Educational Planning, Portland Public School</i></p>	<p>Have you ever wondered what it was like to live long ago? You're in luck! A time machine is available to take you back to any time period you are studying in class.</p> <p>Before your trip back in time, think about some questions you would like answered about how people may have lived. You might have questions about what types of food people ate, what they did for work, what school was like or what people did for fun. Use information from class or other sources to help you answer your questions. As you go back in time, compare how life is different from and the same as life today, using the questions you developed. Make sure you provide examples. Based on the information you have found, decide if life is easier or harder today. Use examples to support your point of view.</p> <p>Using the information you have collected, design a brochure to help your classmates know what to expect if they go back in time. At the end of the brochure, write about the most important thing you learned while doing the project and what you would do differently next time. You will be assessed on your ability to develop questions, your ability to compare and contrast, your ability to make decisions, and your ability to communicate effectively in a variety of ways.</p>
<p>Grades 3-5 Language Arts and Social Studies <i>SOURCE:</i> <i>Educational Planning, Portland Public School</i></p>	<p>As you and a partner study conflicts during the Revolutionary war, think about the statement "The pen is mightier than the sword". What does this statement mean? Do you agree or disagree with this statement? Each time you discuss your views in context to the Revolutionary War, keep a log of the reasons for or against supporting the statement. With your partner, reach consensus on how to view the statement and then construct an argument supporting the statement or why you do not agree with it. You must use specific historical examples in your argument. Be sure you can identify and explain cause and effect in the historical examples.</p> <p>Is the statement relevant to today's world? Why or why not? Can you think of some challenge the world faces today that can be remedied by "the pen"? How might you go about making this change?</p> <p>You will be assessed on your ability to work collaboratively with a peer, your ability to understand the effects of major conflicts, your understanding of major written documents in American history, your ability to explain cause and effect, your ability to construct support and your ability to communicate effectively in a variety of ways.</p>
<p>Grades 6-8 Language Arts and Social Studies <i>SOURCE: Paul MacDowell, Portland Public Schools</i></p>	<p>You are the president of Eco--Create INC., a new company that tries to help regions develop using natural resources. You are trying to obtain funding for a new project in Maine. To help investors understand your plans, you are creating a presentation that will demonstrate the relationship between 18th century Maine geography and local, national and global events. Use historical investigation to research how Maine's geography affected its development. You may want to consider settlement, industry, farming and other important events.</p> <p>Using the data collected, make a presentation that would support your point of view that Maine is the keystone of the Atlantic Rim based on geographic and historical factors. Use this information to justify your request for funding to have Maine become a major international trade zone. Be sure you can answer any questions or rebuttals from the bankers!</p>

	<p>You will be assessed on your ability to use historical investigation, your ability to use induction to reach conclusions, and your ability to communicate effectively in a variety of ways.</p>
<p>Grades 9-12 Social Studies <i>SOURCE: Paul MacDowell, Portland Public Schools</i></p>	<p>As a student council member, you are involved with sending a team of five students to represent the city at the International Festival in Boston. The team is to provide a "snapshot" of your school and community. Several students suggested as possible candidates are native born Americans and tension has already started to rise as minority students and recent immigrants claim they are not being adequately represented. Your job is to develop an equitable, democratic solution to the problem of selecting students.</p> <p>Based on what you know, set up criteria that would be used to help select students. Your criteria should include a balance between individual rights and the common good and show equity. Other criteria should constitute ways to provide a true snapshot of your school. Make sure you consult with groups within your school for points of view. As you work on your plan, come to at least two conclusions about the benefits and challenges of a multicultural society. Make suggestions for helping the various groups in your building communicate and work together more efficiently. After you have developed a plan of action, consider what options students might have if they disagree with the selection process. Make suggestions about possible procedures to over-ride decisions.</p> <p>You will be assessed on your ability to make decisions that reflect the balance between individual and group rights, your ability to analyze perspectives and your ability to work collaboratively.</p>
<p>Grades K-2 Mathematics <i>SOURCE: Exemplars</i></p>	<p>Scenario: Students will be instructed to measure and record the circumference of their own wrists. They will then record the measurements of five other students' wrists. Students will then make a graph of the five wrist measurements. They will use this data to predict the circumference of that of a peer's wrist. Students will then ask three more students for their measurement and record them. They will then compare their prediction to these results.</p>
<p>Grades 3-5 Mathematics <i>SOURCE: Exemplars</i></p>	<p>I am planning on having 5 friends over for a pizza party. I bought three pizzas (all the same size) for the party. One was divided into 4 equal parts, the second was divided into 6 equal parts and the third pizza was divided into 8 equal parts. Is there any possible way I can show how to share these pieces so that each one of us gets the same amount? If not, show how much each person gets.</p> <p>Be sure to explain your reasoning clearly. Use any fraction pieces that are in the classroom or that you might like to make yourself.</p>
<p>Grades 6-8 Mathematics <i>SOURCE: Exemplars</i></p>	<p>This week's issue of my local paper contains 8 pages.</p> <ul style="list-style-type: none"> • Page 1 has all the headline news and no advertisements • Page 2 has one advertisement that takes up $\frac{1}{2}$ of the page • Page 3 has ads for 2 local businesses, one takes up $\frac{1}{2}$ of the page and the other is the size of $\frac{1}{6}$ of the page • Page 4 has a grocery ad that takes up $\frac{1}{4}$ of the page • $\frac{5}{12}$ of page 5 advertises local products • $\frac{5}{6}$ of page 6 is real estate ads • Page 7 is all sports news • Page 8 has only $\frac{1}{6}$ of the page for news and the rest is restaurant and movie ads. <p>What fractional part of the whole paper is taken up with news and not advertising? If each page measures 11 inches by 16 inches, what is the area of the entire paper available for printing the week's news?</p> <p>Bonus: How does this ratio of news to ads compare with that in the typical issue of the Houston Chronicle?</p>
<p>Grades 9-12 Mathematics <i>SOURCE: Exemplars</i></p>	<p>Our Paper, Their Paper: In the United States, we measure quantities with the customary system. A regular sheet of paper measures 8.5 by 11 inches. In other countries, a regular sheet of paper has the size "A4". Below you see some measurements of other paper sizes.</p>

Instructional Planning & Delivery

	<p>1. Use this table to find out what the dimensions of A4 are.</p> <table> <tr> <td>A0</td><td>33" x 46.5"</td></tr> <tr> <td>A1</td><td>23" x 33"</td></tr> <tr> <td>A2</td><td>16.5" x 23"</td></tr> </table> <p>1. Which is larger, a US regular piece of paper or A4?</p>	A0	33" x 46.5"	A1	23" x 33"	A2	16.5" x 23"
A0	33" x 46.5"						
A1	23" x 33"						
A2	16.5" x 23"						

Grades K-2 Science <i>SOURCE: Exemplars</i>	<p>Dinosaur Bones: Scientists have used the bones of dinosaurs to figure out what they might have looked like, how they moved about, and how they lived. We are going to be scientists asking the question, "How did the body structures of dinosaurs adapt for their survival?"</p> <p>In your body, you have different-size bones. The dinosaurs had different sizes and shapes of bones in their bodies, too. In the outline of your dinosaur, you will draw where you think the large and small bones would be. I also want you to think about how the dinosaur's skeletal system – the bones working together – relate to the movements of your dinosaur?</p>
Grades 3-5 Science <i>SOURCE: PALS</i>	<p>At your station you have a collection of rocks that have many differences. Some are smooth, some are very grainy, and some are colored. These differences are called properties. Some properties are very easy to see, or feel. Other properties are hard to discover and you may need to use the magnifying lenses to look closely to discover the similarities and differences in the rock samples. Think about a property of the rocks. Then think about the opposite conditions of that property. The first property you will use is size. The opposite conditions of that property are "large" and "small." Sort your rocks by putting large ones in one pile, and small ones in another pile. The differences do not need to be very great, but you and your partners have to decide. When you have grouped them, count the number in each group and enter the number on your Data Sheet. Your job now is to find other properties of the rock samples that have opposite conditions that you can use to divide, or classify, the rocks into two groups. To do this, follow these steps.</p> <ol style="list-style-type: none"> 1. Look at the rocks and decide on a property that has opposite conditions you can use to form groups. Write the name of the property in the chart on your Data Sheets. 2. Name the opposite conditions of that property, and write them on your Data Sheets. 3. Put the rocks in piles using those conditions. If some rocks do not fit in either group, put them in a third pile. 4. Fill in the data sheet as you did in the first row. <p>Repeat this process for as many properties as you can, always entering the results on your Data Sheet.</p>
Grades 6-8 Science <i>SOURCE: Exemplars</i>	<p>What's the Difference? When walking out in the woods, many people want to know the names of different living things. Often, you may ask, is that an Oak? What kind of bird is that? These names categorize organisms according to anatomical differences. To truly know what an organism is, it is essential to know not just its name, but what makes it different from all the other organisms out there.</p> <p>Our project has two phases to the inquiry task. First, you'll select a group of similar organisms so that you can observe them in their natural environment. Then you will use your observations to describe at least two individuals within this group - using both scientific sketches and descriptions. Your descriptions should show any anatomical differences that you observed.</p>
Grades 9-12 Science <i>SOURCE: PALS</i>	<p>You will remember that Hooke's Law describes the relationship between the force applied to a spring and its elongation (stretch). That is, if a force stretches a spring, the elongation is directly proportional to the force applied.</p>

	<p> $F = kx$ Where: F = force in newtons k = spring constant in newtons/meter x = elongation in meters </p> <p> Imagine that you work for a spring manufacturer and your job is to determine whether Sample Spring A will elongate to exactly 0.3 meters when a force of 15 newtons is applied. Your job is to conduct an experiment which will determine whether Sample Spring A meets this specification. </p>
--	---

Assessment Plan – Guiding Questions

This template includes the guiding questions for assessment planning and can be used to help organize the process for creating an assessment. Make sure to follow the guidance provided in Chapter 2 on Assessments for considering each main question or template section.

What are your learning goals or standards for the unit?

If necessary, simply write the standard numbers.

What evidence would you need from students to demonstrate mastery of the standards/goals in the unit?

What are the verbs in your standards? → On what content are the verbs taking action?

*What **knowledge** or **understanding** is necessary to master this unit goal?*

What **reasoning** (if any) is necessary to master this unit goal?

What **skill performance** (if any) is necessary to master this unit goal?

What **products** (if any) are necessary to master this unit goal?

What method or methods will you use to assess? Why?

What are the proportions of types of items or tasks and the proportion of topics?

What are the criteria for success? What are the characteristics of a high quality response?

Considerations for Assessment Question Types

To select the appropriate question types for your assessment, you should consider a number of different factors. These factors may include the content of the unit; the breadth of material you are teaching; the efficiency of creating and administering the questions; the depth of knowledge your questions can reveal; and elements that may distort the accuracy of your questions. To help sort through these various factors, use the chart below for guidance:

Key Factors to Consider	Objective Assessment Questions	Non-Objective Assessment Questions
Content (or type of learning) Best Assessed	Efficient for measuring Knowledge, Comprehension, Application levels of Bloom's	Inefficient for measuring Knowledge (although not impossible); better for Analysis, Synthesis, Evaluation
Amount of Content Assessed	Can include large number of items in one assessment, making it efficient . Broad coverage makes reliability stronger (more examples); easier to scaffold questions/content so exact misunderstanding can be targeted	Usually one or a few prompts makes broad coverage less efficient and less reliable since there are fewer opportunities to demonstrate mastery. However, if designed carefully, it can cover a breadth of knowledge by assessing students' ability to make connections across content topics
Efficiency of Preparation and Creation	Preparation of valid and reliable examples is difficult and can be inefficient	Preparation of good items is difficult but more efficient than objective assessment items
Scoring	Objective, efficient, reliable	Subjective, inefficient and less reliable , but can be made more efficient with the use of a rubric or detailed grading system
Factors Distorting Scores	Reading ability, cheating, guessing	Writing ability, bluffing
Probable Effect on Learning	Encourages students to remember, interpret and use the ideas of others	Encourages students to organize, integrate and express their own ideas

Guidance for Creating Valid Assessment Items

The following are guidelines for creating aligned question items that reveal true mastery. Note that these guidelines are not exhaustive – depending on your content area and assessment topics there may be other considerations for designing valid items. Use these examples as a beginning reference and a reminder to consistently reflect on whether your assessment questions will elicit accurate evidence of student understanding.

Creating Aligned Items

If the desired result is for learners to ...	Then you need evidence of the student's ...	So, the assessments need to be something like ...
<ul style="list-style-type: none"> Explain the process of diffusion 	<ul style="list-style-type: none"> Knowledge of diffusion (knowledge) Ability to explain the process of diffusion (skill) 	<p>NON-EXAMPLE</p> <p>DIFFUSION occurs when a system is not at ...</p> <ul style="list-style-type: none"> a. Equilibrium b. Rest c. Boiling Point d. Saturation
		<p>EXAMPLE</p> <p>Trudy drops one drop of ink into a full glass of water. Using your knowledge of DIFFUSION, describe what will happen in the glass of water.</p>

Writing Stems¹

Guideline	Poor Example	Better Example
Stems should be clear, simple and present only a single problem. Leave out unnecessary details.	There are several types of objective and non-objective assessments. An essay assessment is especially useful because...	An advantage of an essay assessment is...
Avoid negative language in the stem. If you must use negative language, be sure to underline, capitalize or otherwise emphasize it.	Which of the following is not a cause of the American Revolution?	Which of the following is NOT a cause of the American Revolution?
Make the stem more robust than the answer choices by including more of the wording at the stem-level.	<p>A percentile score:</p> <ul style="list-style-type: none"> a. indicates the percentage of items answered correctly. b. indicates the percentage of correct answers divided by the percentage of wrong answers. c. indicates the percentage of people who scored at or above a given raw score. c. indicates the percentage of people who scored at or below a given raw score. 	<p>A percentile score indicates the percentage of</p> <ul style="list-style-type: none"> a. items answered correctly. b. correct answers divided by the percentage of wrong answers. c. people who scored at or above a given raw score. d. people who scored at or below a given raw score.

¹ Adapted from Woolfolk, A. (2001). Educational psychology, 8th edition. Boston: Allyn Bacon.

Instructional Planning & Delivery

Writing Alternatives in Multiple Choice Items

Guideline	Poor Example	Better Example
Do not provide alternatives that demand extremely fine discrimination among answer choices.	The percentage of area in a normal curve falling between +1 and -1 standard deviations is about: a. 66% b. 67% c. 68% d. 69%	The percentage of area in a normal curve falling between +1 and -1 standard deviations is about: a. 14% b. 33% c. 68% d. 95%
Alternatives should parallel the grammar of the stem so that answers can't be eliminated due to grammar.	An early step in the scientific process is creating a theory to investigate. This is also known as a: a. result b. hypothesis c. design d. test and retest	An early step in the scientific process is creating a theory to investigate. We call this stage: a. result b. hypothesis c. design d. test and retest
Avoid categorical words like <i>always</i> , <i>never</i> , <i>all</i> , <i>only</i> unless they can appear consistently in all alternatives.	The volume of a regular 3-D solid is: a. never equal to the area b. always very close in value to the area of the solid's face c. sometimes determined by the area of a face of the solid	Which of the following statements about the volume of a regular 3-D solid would most often be true? a. it equals the area b. it will be very close to the area of the solid's face c. it is determined by using the area of a face of the solid.
Don't use two distractors that have the same meaning. If only one answer is right, and two answers are the same, they must be wrong.	In the sentence, <u>expedition</u> means the same, or about the same as: a. tradition b. meeting c. custom d. journey	In the sentence, <u>expedition</u> means the same, or about the same as: a. tradition b. meeting c. tribute d. journey
Make sure all distractors are plausible and relevant!	People everywhere have unlimited wants and limited resources. James and Heidi are people who live in different countries. Which of the following must be true: a. James and Heidi have unlimited wants and limited resources b. James lives on the Moon and Heidi lives in Austria c. Heidi is a young girl	People everywhere have unlimited wants and limited resources. James and Heidi are people who live in different countries. Which of the following must be true: a. James and Heidi have unlimited wants and limited resources b. James and Heidi can have all their material wants fulfilled c. James and Heidi must produce all the goods that they consume
<ul style="list-style-type: none"> • Avoid using the exact wording from the textbook or a lecture. • Avoid overuse of <i>all of the above</i>, <i>none of the above</i>. • Vary the position of the correct response. 		

Writing Non-Objective Item Prompts

Guideline	Poor Example	Better Example
Make the prompt clear and concise and reveal the criteria used to judge answers. Break the question down so specific criteria can be judged.	Discuss the causes of the American Revolution.	<p>a. List two reasons the colonists felt they should break away from England. Do you think those reasons were good? Why or why not?</p> <p>b. List two reasons the English wanted to keep the colonies. Do you think those were good reasons? Why or why not?</p>
Make sure your question elicits higher-level thinking from students. <i>If not, consider using objective-item tests.</i>	Why were Iroquois longhouses made of wood?	Do you think an Iroquois longhouse is more like an apartment building or a one-family house in our culture? Why?

Protocols for Evaluating Student Work

As mentioned in the course text, looking at student work with colleagues is a growing practice among effective teachers. To ensure that time spent looking at work is both productive and efficient, protocols have been developed that delineate a process for the conversation. Protocols vary to serve different purposes and several examples have been included as part of this tool. The short descriptions below are drawn from the Annenberg Institute for School Reform at Brown University. For more information about looking at student work, start at the Annenberg web site, www.lasw.org.

What Does a Typical Protocol Look Like?

A "typical" protocol for looking at student work look like this: **A small group of teachers and/or administrators gather in a circle** - eight to twelve is a good number. One of the teachers (the presenter) has brought samples of his or her students' work to present. A facilitator gets the discussion going and makes sure that the guidelines and agenda for the protocol are followed. **The protocol specifies that time be allotted for different purposes**, which may include asking a focusing question, presenting the instructional context (or standards) for the student work, description of the student work, asking clarifying questions, asking "probing" questions, providing feedback on the work, reflecting on the feedback, etc. The protocol may last from 45 minutes to an hour and a half.

The Charrette

The Charrette is a term and process borrowed from the architectural community. Charrette conversations provide a low stakes/no stakes environment for teachers to present student work (and/or teacher work) with which they are having a problem. After presenting the work-in-progress and specifying the kind of help they want from the group, the "requesting team" listens to the group discuss the work in light of the request for help. A moderator/facilitator helps guide the discussion, occasionally summarizing key points for discussion or reflection.

Constructivist Protocol

Developed by Daniel Baron of the Harmony School, Indiana, the Constructivist Protocol provides a self-assessment tool for students, intended to generate new insights and deepened student investment in their own work. A student presents his or her best work to classmates, who then look at the work in order to identify the qualities in the work that contributes to making it "best work." Students then seek to incorporate those qualities in future work, which they may choose to bring to the group for another protocol.

Standards in Practice

Standards in Practice (SIP) has been developed by the Education Trust as a "quality control tool" for analyzing and improving the quality of instruction provided to students. The SIP process is typically used, in bi-monthly meetings of small teams of teachers, guidance counselors, and parents. The process calls for a close examination of teachers' assignments and student work against a relevant standard or set of standards. Facilitation of the process is typically provided by a coach from outside the school (who may also serve as a resource to teachers outside the SIP meetings).

Tuning Protocol

The Tuning Protocol was developed by the Coalition of Essential Schools as a means of providing teachers feedback on the authentic assessment systems they were engaged in developing, including exhibitions, portfolios, etc. A teacher, or team of teachers, presents samples of student work and the context for the work (assignment, rubric) and (usually) a focusing question about which he or she would especially welcome discussion. After carefully reviewing the work, participants provide "warm" and "cool" feedback on the work while the presenter listens in silence, who then reflects on what she's heard. The Tuning Protocol may be facilitated by someone from inside or outside the group using it.

Rubrics

Applicable to all content areas and grade levels, a rubric is an assessment tool that clearly defines expectations for student performance and/or understanding. A rubric goes beyond a typical test or checklist by stating explicit outcomes for a specific performance and delineating different levels of quality for that performance. In addition to serving as a grading tool for summative assessments, rubrics facilitate formative feedback and support student revision. Rubrics are also helpful in defining student achievement for families.

When to use rubrics	How to use rubrics
<ul style="list-style-type: none"> • Create a rubric while developing an assessment to define your expectations for student work. • Distribute a rubric before an assessment to guide student work. • Distribute a rubric after an assessment to guide student revision. 	<ul style="list-style-type: none"> • Determine the knowledge or skills to be assessed. • Define levels of progress or proficiency • Assign appropriate points to different parts of assessment prompts. • Develop a format.

What does a rubric look like?

There are two generally accepted types of rubrics, holistic and analytic.

- A **holistic rubric** lumps all assessment criteria together at various levels. Each level addresses the same set of criteria.
- An **analytic rubric** separates assessment criteria and measures each individually.

What follows are two rubrics, one holistic and one analytic; both assess oral presentations.

Holistic Rubric for Oral Presentations

4.	The student clearly describes the topic of study and why it was selected. The delivery is dynamic, well paced, clear, and engages the audience. The student provides supporting evidence for each conclusion. Eye contact is sustained throughout the presentation. The student uses visual aides to engage the audience or to support their communication. The student clearly demonstrates that he or she has spent time preparing for the presentation. All questions are fielded and responded to accurately.
3.	The student describes the topic of study, but does not consistently provide evidence for conclusions. The student speaks at an audible tone and at a clear pace. The student maintains eye contact for the majority of the presentation. Preparation is evident. The student mentions the visual aid. Questions are fielded and answered.
2.	The student presents the topic of study, but takes little time to describe it. The student rarely supports conclusions with evidence. The presentation is audible but incoherent at times. The student does not maintain eye contact. There is not significant evidence of student preparation. The student does not reference any visual aid. Questions are fielded and answered with minimal responses.
1.	The student makes the presentation without clearly stating the topic of study. The student provides no evidence to support infrequent conclusions. The delivery is difficult to follow. Eye contact is not made. The student provides no visual aid. There is no indication of preparation. Questions receive little to no response.
0.	No oral presentation is attempted.

Instructional Planning & Delivery

Analytic Rubric for Oral Presentations

Indicator	1	2	3
Definition of topic of study	The student does not clearly introduce the topic of study.	The student briefly introduces the topic of study.	The student clearly describes the topic of study and describes the reason for its selection.
Quality of speech	Incorrect sentence structure and incoherent speech.	Mostly correct sentence structure and reasonably coherent speech.	Correct sentence structure and clear speech.
Quality of pacing	The student either finishes extremely early or does not complete the presentation.	The student has to make dramatic pacing changes to complete presentation.	The student completes the presentation in the allotted time without accelerating pace.
Eye contact	The student does not make eye contact throughout the presentation.	The student makes sporadic eye contact throughout the presentation, or makes eye contact with only a few individuals.	The student makes consistent eye contact with various audience members throughout the presentation.
Visual Aide	The student uses no visual aide during the presentation.	The student uses, but does not refer to the visual aide throughout the presentation.	The student uses and refers to the visual aide as appropriate throughout the presentation.
Preparation	The student clearly did not prepare before the presentation (e.g. the presentation is incomplete).	The student demonstrates a lack of preparation for the presentation (e.g. the student is rushing to complete presentation at the last minute).	The student presentation reflects preparation.
Q&A	The student provides incomplete or inaccurate responses to questions.	The student responds to questions.	The student accurately responds to all questions.

Notice that in both rubrics, the language and the structure are consistent for each indicator (incorrect sentence structure-mostly correct sentence structure-correct sentence structure). Such structural consistency is important because it helps students determine the focus and expectations for each category of assessment.

You will note that neither of these rubrics addresses the complexity or mastery of the content that is delivered through the presentation. If your purpose were simply to meet the oral language objectives in your language arts curriculum, you would not necessarily need to assess content. However, if you are using the presentation as an alternative form of assessment of content-area material, you may want to assess both the delivery and the content. Therefore, depending on your purpose for developing this assignment, you could choose a variety of options to assess content-area mastery. For example, you could choose to use two separate rubrics, one that assesses the delivery and another that assesses the content. Other options include adding indicators to the original rubric so that content is covered within the same rubric or using some other form of assessment (such as a quiz or essay) to gauge content mastery. Remember that many rubrics are also supplemented by student work samples to help illustrate what the different proficiency levels look like. Creating anchor illustrations for an oral presentation may not be feasible, but it would be beneficial for assessing content mastery.

Why go through the hassle of creating a rubric?

Creating and using rubrics supports student achievement by providing concrete feedback that tells students where they stand relative to a standard of knowledge or skill. A rubric is powerful because it can be used to help guide students in their preparation leading up to, their delivery during, and their reflection and revision following the assignment.

When to use rubrics	Description
Before the presentation	The students receive a rubric for oral presentations. The teacher constantly refers students to the rubric as they prepare their presentations. The teacher asks students to assess their own presentation to determine what they need to improve prior to the presentation.
During the presentation	The teacher uses the rubric to assess each student presentation. Students can also use the rubric to assess one another and themselves.
After the presentation	The teacher returns each assessment. Students are encouraged to review their assessment and revise their presentation to meet the standards. If possible, students are provided the opportunity to present their revised work.

How do I use a rubric score to give the student a grade?

Depending on the type of assessment system you are using, you may find it necessary to translate a rubric grade into a traditional letter or number grade. It is generally best to determine in advance how a rubric number will correspond with a traditional grade and to share that information with the students, particularly if they do not have much familiarity with rubrics. On the other hand, there are valid arguments for not assigning each rubric score a letter grade right away. A key argument is that rubric scores are much more descriptive than traditional grades, and they focus students on areas for improvement and growth, as opposed to a traditional grade, which can send the message of finality. For example, in a writing classroom you may keep student portfolios to measure student growth around your performance criteria. You could decide what combination of performance and growth over the length of the grading period would constitute an A, B, C, etc. For example, consistently performing at levels 4 and 5 on a 5-point rubric, while also demonstrating consistent growth in two indicators may be your criteria for an A. Then, at the end of each grading period you would use those criteria for student performance and growth to assign a letter grade.

Math Diagnostic

4th Grade Mathematics Diagnostic

Student Name _____

Date Administered _____

Question #	Mississippi Math Benchmark	Mastered / Not Mastered
1. What are the next 3 numbers in the pattern shown below?	1a. Recognize, describe, and extend a given pattern.	
2. Month/Years table.	1b. Analyze a given pattern and generate a similar pattern. 7i. Apply problem-solving techniques to solve one and two-step problems involving the basic operations.	
3. Which of these shapes has 6 faces?	2b. Identify, describe, classify, and compare two and three-dimensional geometric shapes, figures, and models.	
4. Which of these is the same size and shape?	2g. Identify congruent and symmetrical figures.	
5. How long is this line segment?	3a. Measure a given object to the nearest fourth of an inch.	
6. A car that is 15 feet long is how many yards long?	3b. Select, use, compare, and convert within the appropriate standard system of measurement.	
7. What is the perimeter of this rectangle?	3c. Determine the perimeter and areas of appropriate standard and nonstandard geometric figures.	
8. At what time is the appointment?	3e. Calculate and solve problems with elapsed time.	
9. Ice Cream Flavors Chart.	4a. Collect, organize, and interpret data using a variety of graphs.	
10. What is the best estimate of the total number of people at the fair both days?	5c. Estimate and use mental math computation to solve real-life problems where exact answers are not required.	
11. Which decimal number when rounded to the nearest one equals 7.0?	6c. Round whole numbers to one hundred thousand and round decimal numbers through hundredths.	
12. What fraction of this rectangle is shaded?	6d. Identify, draw, and model equivalent fractions.	
13. $\$20.00 - \$17.84 =$	7b. Add and subtract decimals to tenths and hundredths. 7e. Add, subtract, multiply, and divide money amounts.	
14. $148 \div 4$	7c. Multiply whole numbers by 1-digit multipliers and divide by 1-digit divisors, with and without remainders.	
15. How much money does Roberta have?	7e. Add, subtract, multiply, and divide money amounts. 7f. Count change to \$10.00.	

Michael Cormack, Delta '03, administers a math diagnostic test to his fourth graders with specific questions for each of the Mississippi Benchmarks. He then uses this form (or has his students use this form) to document if they have mastered or not mastered the skill.

Sample Long-Term Plan

The following is an example of a long term plan for 3rd grade math, using learning goals from the state of Arizona.

Unit 1: Place Value (Number Sense)		Unit Length: 7-10 days August 14-23
Learning Goals to be Assessed	M03-S1-C1-01: Read whole numbers in contextual situations (through six-digit numbers)	
	M03-S1-C1-02: Identify six-digit whole numbers out of order	
	M03-S1-C1-03: Write whole numbers through six digits in or out of order	
	M03-S1-C1-04: State whole numbers, through six digits, with correct place value, by using models, illustrations, symbols, or expanded notation	
	M03-S1-C1-07: Sort whole numbers into sets containing only odd numbers or only even numbers	
	M03-S1-C1-08: Compare two whole numbers, through six-digits	
	M03-S1-C1-09: Order three or more whole numbers through six-digit numbers (least to greatest, or greatest to least)	
Remedial Learning Goals	M02-S1-C1-01: Make a model to represent a given whole number 0 through 999.	
	M02-S1-C1-02: Identify a whole number represented by a model with a word name and symbol 0 through 999.	
	M02-S1-C1-03: Count aloud, forward or backward, in consecutive order (0 through 999).	
	M02-S1-C1-04: Identify whole numbers through 999 in or out of order.	
	M02-S1-C1-07: State verbally whole numbers, through 999, using correct place value (e.g., A student will read <u>528</u> as five hundreds, two tens, and eight ones.).	
	M02-S1-C1-08: Construct models to represent place value concepts for the one's, ten's, and hundred's places.	
Enrichment Learning Goals	M04:S1-C1-07:	

Instructional Planning & Delivery

Unit 2: Place Value - (Adding/Subtraction)		Unit Length: 10 days August 24 – Sept.1
Notes	These are all standards you will revisit throughout the year. You might want to start with THOUSANDS, and as weeks and months go by, introduce larger numbers.	
Learning Goals to be Assessed	*M03-S1-C1-05: Construct models to represent place value concepts for one's, ten's, and hundred's	
	M03-S1-C1-06: Apply expanded notation to model place value through 9,999 ($5,378 = 5,000 + 300 + 70 + 8$)	
	M03-S1-C2-01: Demonstrate the process of subtraction using manipulatives through three-digit whole numbers	
	M03-S1-C2-02: Add two three-digit whole numbers	
	M03-S1-C2-03: Add a column of numbers	
	M03-S1-C2-05: Select grade-level appropriate operation to solve problem.	
	M03-S1-C2-06: Solve word problems using grade-level appropriate operations and numbers	
Remedial Learning Goals	M02-S1-C2-06: Add 3 one or two digit addends.	
	M02-S1-C2-04: Add one and two digit whole numbers with regrouping.	
	M03-S3-C3-02: Solve equations with one variable using missing addends to sums of 18 (ex: $x + 9 = 18$) and using the minuend through 18 ($18 - x = 9$)	
	M02-S1-C2-01: Demonstrate the process of addition through two three-digit whole numbers, using manipulatives.	
	M02-S1-C2-08: Solve word problems using addition and subtraction of two 2-digit numbers with regrouping.	
Enrichment Learning Goals	M04-S1-C1-05: Construct models to represent place value concepts for the one's, ten's, hundred's, and thousand's places.	
	M04-S1-C1-06: Apply expanded notation to model place value (e.g., $203,495 = 200,000 + 3,000 + 400 + 90 + 5$).	

Unit 3: Decimals		Unit Length: 5 – 7 days; Sept. 2 – Sept 12 (No school Sept. 4 for Labor Day; 13 th is ½ day for PD)
Notes	You will use a lot of the decimal standards in your “Money” Unit as well. The focus of the unit needs to be a closer relationship to fractions and equivalency.	
Learning Goals to be Assessed	M03-S1-C1-16: Use decimals through hundredths in contextual situations	
	M03-S1-C1-17: Compare two decimals, through hundredths, using models, illustrations, or symbols	
	M03-S1-C1-18: Order three or more decimals, through hundredths, using models, illustrations, or symbols	
	M03-S1-C1-19: Determine the equivalency among decimals, fractions, and percents (example: half dollar = .50 = 50% and $\frac{1}{4}$ = .25 = 25%)	
	M03-S1-C2-05: Select grade-level appropriate operation to solve problem.	
	M03-S1-C2-06: Solve word problems using grade-level appropriate operations and numbers	
Remedial Learning Goals	M02-S1-C1-18: Use decimals through hundredths in contextual situations with money.	
Enrichment Learning Goals	M04-S1-C1-16: Order three or more decimals	
	M04-S1-C1-17: Determine the equivalency among decimals, fractions, and percents (e.g., $\frac{49}{100}$ = 0.49 = 49%).	

Instructional Planning & Delivery

Unit 4: Money		Unit Length: 7 days Sept. 14 – 22
Notes	While students should be able to recognize the coins, they need practice adding combinations of coins. They also need practice adding past a dollar (ex: 3 quarters, 4 dimes, 1 nickel = \$1.20). Also, making change should be a focus of this unit.	
Learning Goals to be Assessed	M03-S1-C1-15: Count amounts of money through \$20.00 using pictures or actual bills and coins	
	M03-S1-C1-16: Use decimals through hundredths in contextual situations	
	M03-S1-C2-05: Select the grade level appropriate operation to solve word problems	
	M03-S1-C2-06: Solve word problems using grade-level appropriate operations and numbers	
	M03-S1-C2-17: Apply addition and subtraction in contextual situations, through \$20.00	
	M03-S4-C4-06: Compare units of measurement to determine more or less relationships (money – pennies, nickels, dimes, quarters, and dollars)	
	M03-S4-C4-07: Determine relationships for money – extend to amounts greater than one dollar	
Remedial Learning Goals	M02-S1C1-16: Count money through \$5.00 using manipulatives and pictures of bills and coins.	
	M02-S1C1-17: Identify the value of a collection of money using the cents symbols and the dollar symbol through \$5.00	
	M02-S1C2-17: Add and subtract money without regrouping using manipulatives and paper and pencil through \$5.00.	
Enrichment Learning Goals	No standards specifically related to money in Fourth Grade.	

Unit 5: Telling Time		Unit Length: 7 days Sept. 25 – Oct. 3
Notes	Telling time can be tricky. It is something that needs to be spiraled during calendar math regularly. Passage of time across a calendar can also be done daily during calendar math.	
Learning Goals to be Assessed	M03-S4-C4-02: Tell time with one-minute precision (analog)	
	M03-S4-C4-03: Determine the passage of time across months (units of days, weeks, months) using a calendar	
Remedial Learning Goals	M02-S4-C4-03: Tell time to the quarter of the hour using analog and digital clocks.	
	M02-S4-C4-07: State equivalent relationships (time).	
Enrichment Learning Goals	M04-S4-C4-02: Compute elapsed time using a clock (e.g., hours and minutes since or until...) or a calendar (e.g., days, weeks, and years since or until...).	

Unit 6: Measurement – US Customary System (capacity, length, weight)		Unit Length: 15 days Oct. 4 – Oct. 31 (Oct. 9-13 is fall break; Oct. 25 is ½ day due to PD)	
Notes	The majority of the third grade standards are focused on the metric system. However, it’s extremely important that your kids also know standard units of measurement. You have to spend a significant amount of time on each, with constant review once the unit is over. Spread out the two measurement units in the year so you don’t cause confusion.		
Learning Goals to be Assessed	M03-S4-C4-06: Compare units of measurement to determine more or less relationships for length (inches to feet)		
	M03-S4-C4-07: Determine relationships for volume (cups and gallons), weight (ounces and pounds)		
	*M03-S4-C4-08: Compare the length of two objects using US customary units		
	M03-S4-C4-09: Determine the perimeter using a rectangular array		
	M03-S4-C4-10: Represent area using a rectangular array		
	M03-S1-C3-02: Estimate length and weight using US customary units		
	*M03-S1-C3-03: Record estimated and actual linear measurements for real-life objects (ex: length of a fingernail, height of a desk)		
	*M03-S1-C3-04: Compare estimations of appropriate measures to actual measures		
	M03-S1-C3-05: Evaluate the reasonableness of estimated measures		
	M03-S1-C2-05: Select grade-level appropriate operation to solve problem. M03-S1-C2-06: Solve word problems using grade-level appropriate operations and numbers		
Remedial Learning Goals	M02-S4-C4-05: Select the appropriate tool to measure the given characteristics of an object (length, capacity and mass).		
	M02-S4-C4-06: Measure a given object using the appropriate measure (length, capacity and mass).		
	M02-S4-C4-01: Identify the type of measure (i.e. weight, height, and time) for each attribute of an object.		
	M02-S4-C4-02: Select the appropriate U.S. customary measure of accuracy (length, capacity, mass).		
	M02-S3-C4-01: Identify the change in a variable over time (i.e. an object gets taller, colder, heavier).		
	M02-S3-C4-02: Make simple predictions based on a variable (i.e. a child’s height from year to year).		
Enrichment Learning Goals <i>(or other state performance indicator)</i>	M04-S4-C4-05: Compare units of measurement to determine more or less relationships including: <ul style="list-style-type: none">length - yards and miles, meters and kilometers, andweight - pounds and tons, grams and kilograms.		
	M04-S4-C4-06: State equivalent relationships (e.g., 3 teaspoons = 1 tablespoon, 16 cups = 1 gallon, 2000 pounds = 1 ton).		
	M04-S4-C4-07: Compare the weight of two objects using both U.S. customary and metric units.		
	M04-S4-C4-08: Determine the perimeter of simple polygons (e.g., square, rectangle, triangle).		
	M04-S4-C4-09: Determine the area of squares and rectangles.		

Instructional Planning & Delivery

Unit 7: Measurement (Metric)		Unit Length: 10-15 days; Nov. 1 – 17 (Nov 9 – ½ day; Nov 10 – no school: Veterans Day; Nov 16, 17 are ½ days: PT Conferences.)
Notes	Students need a lot of exposure to estimating measurements. They may get metric mixed up with standard. Make sure to talk about all types of measurement throughout the year.	
Learning Goals to be Assessed	M03-S4-C4-01: Select the appropriate measure of accuracy: <ul style="list-style-type: none"> Length: centimeters, meters, kilometers Capacity/volume: liters Mass/weight: grams 	
	M03-S4-C4-04: Measure a given object using the appropriate unit of measure: <ul style="list-style-type: none"> Length: centimeters, millimeters, meters, and kilometers Capacity/Volume: liters Mass/weight: grams 	
	M03-S4-C4-05: Record temperatures to the nearest degree in degrees F and degrees C as shown on thermometer (start this early in the year in calendar math as well)	
	M03-S4-C4-06: Compare units of measurement to determine more or less relationships for length (centimeters to meters)	
	*M03-S4-C4-08: Compare the length of two objects using metric units	
	*M03-S1-C3-04: Compare estimations of appropriate measures to actual measures	
	*M03-S1-C3-05: Evaluate the reasonableness of estimated measures	
	M03-S1-C2-06: Solve word problems using grade-level appropriate operations and numbers	
Remedial Learning Goals	M02-S3-C4-02: Make simple predictions based on a variable (i.e. a child's height from year to year).	
	M02-S4-C4-06: Measure a given object using the appropriate measure (length, capacity and mass).	
	M02-S4-C4-01: Identify the type of measure (i.e. weight, height, or time) for each attribute of an object.	
	M02-S4-C4-02: Select the appropriate U.S. customary measure of accuracy (length, capacity, or mass).	
	M02-S3-C4-01: Identify the change in a variable over time (i.e. an object gets taller, colder, heavier).	
Enrichment Learning Goals (or other state performance indicator)	M04-S4-C4-05: Compare units of measurement to determine more or less relationships including: <ul style="list-style-type: none"> length - yards and miles, meters and kilometers, and weight - pounds and tons, grams and kilograms. 	
	M04-S4-C4-06: State equivalent relationships (e.g., 3 teaspoons = 1 tablespoon, 16 cups = 1 gallon, 2000 pounds = 1 ton).	
	M04-S4-C4-07: Compare the weight of two objects using both U.S. customary and metric units.	
	M04-S4-C4-08: Determine the perimeter of simple polygons (e.g., square, rectangle, triangle).	
	M04-S4-C4-09: Determine the area of squares and rectangles.	

Unit 8: Graphing/Data		Unit Length: 12-14 days Nov. 20 – Dec. 12 (Nov 23-24 no school: Thanksgiving; Dec. 6 is ½ day: PD)	
Notes	You can start graphing very early in the school year, especially bar graphs. Do a “graph of the week” (or something similar) in order to spiral the graphing objectives. The graphs should get more complicated as the year goes on. Example: For pictographs, use a key where each picture = 4 votes.		
Learning Goals to be Assessed	*M03-S2-C1-P01: Formulate questions to collect data in contextual situations		
	M03-S2-C1-P02: Construct a horizontal bar, vertical bar, pictograph, or tally chart with appropriate labels and title from organized data		
	M03-S2-C1-P03: Interpret data found in line plots, pictographs, and single-bar graphs (horizontal and vertical)		
	M03-S2-C1-P04: Answer questions based on data found in line plots, pictographs, and single-bar graphs (horizontal and vertical)		
	*M03-S2-C1-P05: Formulate questions based on graphs, charts, and tables to solve problems		
	*M03-S2-C1-P06: Solve problems using graphs, charts, and tables		
	M03-S1-C2-05: Select grade-level appropriate operation to solve problem.		
M03-S1-C2-06: Solve word problems using grade-level appropriate operations and numbers			
Remedial Learning Goals	M02-S2-C1-03: Interpret pictographs using terms such as most, least, equal, more than, less than and greatest.		
	M02-S2-C1-04: Answer questions about pictographs using terms such as most, least, equal, more than, less than and greatest.		
	M02-S2-C1-02: Make a simple pictograph or tally chart with appropriate labels from organized data.		
Enrichment Learning Goals	M04-S2-C1-02: Construct a single-bar graph, line graph or two-set Venn diagram with appropriate labels and title from organized data.		
	M04-S2-C1-03: Interpret graphical representations and data displays including single-bar graphs, circle graphs, two-set Venn diagrams, and line graphs that display continuous data.		
	M04-S2-C1-04: Answer questions based on graphical representations and data displays including single-bar graphs, circle graphs, two-set Venn diagrams, and line graphs that display continuous data.		

Instructional Planning & Delivery

Unit 9: Multiplication/Division (The PROCESS)		Unit Length: 10 Days Dec. 13 – Jan. 12 (Dec. 22-Jan 5 no school: Winter Break)
Notes	The PROCESS of multiplication/division needs to be a unit, but memorizing facts should be ongoing. You can start other units as the kids continue to practice their multiplication facts (and eventually, division facts) Stress FACT FAMILIES during the process.	
Learning Goals to be Assessed	*M03-S1-C2-07: Demonstrate the process of multiplication as repeatedly adding the same number, counting by multiples, combining equal sets, and making arrays	
	*M03-S1-C2-08: Demonstrate the process of division with one-digit divisors (separating elements of a set into smaller equal sets, sharing equally, or repeatedly subtracting the same number)	
	M03-S1-C2-09: Demonstrate families of equations for multiplication and division through 9's	
	M03-S1-C2-10: State multiplication and division facts through 9's (this doesn't happen until after the process has been taught, and is ONGOING)	
	M03-S1-C2-11: Demonstrate the communicative and identity properties of multiplication	
	M03-S1-C2-12: Identify multiplication and division as inverse operations	
	*M03-S1-C2-14: Apply the symbol (x)	
	M03-S1-C1-20: Identify whole-number factors and/or pairs of factors for a given whole number through 24	
	M03-S1-C1-21: Determine multiples of a given whole number with products through 24 (skip counting)	
	*M03-S3-C2-01: Describe a rule used in a simple grade-level appropriate function (example: t-chart, input/output model, frames and arrows)	
	M03-S1-C2-05: Select grade-level appropriate operation to solve problem. M03-S1-C2-06: Solve word problems using grade-level appropriate operations and numbers	
Remedial Learning Goals	M02-S1-C2-09: Count by multiples of threes.	
	M02-S3-C1-02: Extend a grade-level appropriate pattern using symbols or numbers.	
	M02-S1-C2-10: State multiplication facts of 2s, 5s and 10s.	
Enrichment Learning Goals	M04-S1-C1-18: Identify all whole number factors and pairs of factors for a given whole number through 144.	
	M04-S1-C1-19: Determine multiples of a given whole number with products through 144.	
	M04-S1-C2-05: Multiply multi-digit numbers by two-digit numbers	
	M04-S1-C2-06: Divide with one-digit divisors.	
	M04-S1-C2-10: Apply the symbol: • and () for multiplication, and ≤, ≥ .	

Unit 10: Fractions		Unit Length: 5-7 days Jan. 16 – Jan 25 (No school Jan 15: MLK day; Jan 24 is ½ day: PD)	
Learning Goals to be Assessed	M03-S1-C1-10:	Make models that represent proper fractions (halves, thirds, fourths, eighths, and tenths)	
	M03-S1-C1-11:	Identify symbols, words, or models that represent proper fractions (halves, thirds, fourths, eighths, and tenths)	
	M03-S1-C1-12:	Use fractions in contextual situations	
	M03-S1-C1-13:	Compare two proper fractions with like denominators	
	M03-S1-C1-14:	Order three or more proper fractions with like denominators (halves, thirds, fourths, eighths, and tenths)	
	M03-S1-C2-16:	Add/subtract fractions with like denominators (halves, thirds, fourths, eighths, and tenths)	
	M03-S1-C2-05:	Select grade-level appropriate operation to solve problem.	
	M03-S1-C2-06:	Solve word problems using grade-level appropriate operations and numbers	
Remedial Learning Goals	M02-S1-C1-14:	Make models that represent given fractions (halves and fourths)	
	M02-S1-C1-15:	Identify in symbols or words a model that is divided into equal fractional parts (halves and fourths)	
	M02-S1-C2-15:	Demonstrate addition of fractions with like denominators (halves and fourths) using models.	
	M02-S1-C2-16:	Demonstrate subtraction of fractions with like denominators (halves and fourths) using models.	
Enrichment Learning Goals	M04-S1-C1-09:	Make models that represent mixed numbers	
	M04-S1-C1-10:	Identify symbols, words, or models that represent mixed numbers	
	M04-S1-C1-12:	Compare two unit fractions (e.g., $\frac{1}{2}$ to $\frac{1}{5}$) or proper or mixed numbers with like denominators.	
	M04-S1-C1-13:	Order three or more unit fractions or proper or improper fractions with like denominators	
	M04-S1-C2-12:	Add or subtract fractions with like denominators, no regrouping.	

Instructional Planning & Delivery

Unit 11: Probability		Unit Length: 7 days Jan. 26 – Feb. 8
Notes	Incorporate fractions into your probability lessons. (Example: the chances of a ____ are $\frac{1}{6}$) Plan a variety of probability experiments for them and then continue to spiral. Spend time with the terms likely, certain, and impossible as well.	
Learning Goals to be Assessed	M03-S2-C2-01: Name the possible outcomes for a probability experiment	
	M03-S2-C2-02: Make predictions about the probability of events being more likely, less likely, equally likely, or unlikely	
	M03-S2-C2-03: Predict the outcome of a grade-level appropriate probability experiment	
	*M03-S2-C2-04: Record the data from a grade-level appropriate probability experiment	
	*M03-S2-C2-05: Compare the outcome of an experiment to the predictions made prior to the experiment	
	*M03-S2-C2-06: Compare the results of two repetitions of the same grade level appropriate probability experiment	
	M03-S2-C3-01: Make a diagram to represent the number of combinations available when 1 item is selected from each of 3 sets of 2 (ex: 2 different shirts, 2 hats, and 2 belts equals 8 different combinations) (This is a form of discrete math and should most definitely be spiraled throughout the year)	
Remedial Learning Goals	M02-S5-C2-02: Identify the concepts of all and none within the context of logical reasoning.	
	M02-S2-C2-02: Predict the most likely or least likely outcome in probability experiments.	
	M02-S2-C2-06: Compare the results of two repetitions of the same probability experiment.	
	M02-S5-C2-01: Identify the concepts of some, every, and many within the context of logical reasoning.	
Enrichment Learning Goals	M04-S2-C2-02: Describe the probability of events as being more likely, less likely, equally likely, unlikely, certain, impossible, fair or unfair.	
	M04-S2-C2-06: Make predictions from the results of student-generated experiments using objects (e.g., coins, spinners, number cubes).	
	M04-S2-C2-07: Compare the results of two repetitions of the same grade-level appropriate probability experiment.	

Unit 12: Geometry		Unit Length: 7-9 days; Feb. 9 – Feb. 23 (Feb 14 is ½ day: PD; Feb 19 no school: Pres. Day; Feb. 23 is ½ day)	
Learning Goals to be Assessed	*M03-S4-C1-01: Build geometric figures with other common shapes (tangrams, pattern blocks, geoboards)		
	M03-S4-C1-02: Name concrete objects and pictures of 3D solids (cones, spheres, cubes, prisms, pyramids, cylinders)		
	M03-S4-C1-03: Describe the relationship between 2D and 3D shapes (squares/cubes, circles/spheres, triangles/cones)		
	M03-S4-C1-04: Recognize similar shapes (same shape, different size)		
	M03-S4-C1-05: Identify a line of symmetry in a 2D shape		
	M03-S4-C2-01: Recognize the same shape in different positions (turn/rotation/flip/slide)		
	M03-S3-C3-01: Identify points in the first quadrant using ordered pairs		
Remedial Learning Goals	M02-S4-C1-01: Compare attributes of two-dimensional shapes (square, rectangle, triangle and circle).		
	M02-S4-C1-02: Recognize congruent shapes.		
	M02-S4-C1-03: Recognize lines of symmetry in a two-dimensional shape.		
	M02-S4-C2-01: Recognize the same shape in different positions (flip & slide)		
Enrichment Learning Goals	M04-S4-C1-03: Draw points, lines, line segments (with open or closed endpoints), rays, and angles		
	M04-S4-C1-04: Classify angles (e.g., right, acute, obtuse, straight).		
	M04-S4-C1-05: Classify triangles as right, acute, or obtuse.		
	M04-S4-C1-06: Identify congruent geometric shapes.		
	M04-S4-C1-08: Draw a 2-dimensional shape that has line symmetry.		

Sample Long-Term Plan, Mapped on a Calendar

November

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				1 <i>Literacy</i> – Letter 'G' Problem Solving Book <i>Interactive Writing</i> – Read Books <i>Math</i> – Matching: Same Number	2 <i>Literacy</i> – Letter 'G' Problem Solving Book <i>Interactive Writing</i> – Read Books <i>Math</i> – Review Matching 1:1	3
4	5 Puerto Rican Recognition Day	6 Election Day	7 Veteran's Day	8 Teacher's Convention	9 Teacher's Convention	10
11 Sight Words: yes, my	12 <i>Literacy</i> – Letter 'H' Problem Solving Book <i>Interactive Writing</i> – Thanksgiving <i>Math</i> – Grouping: More Than...	13 <i>Literacy</i> – Letter 'H' Problem Solving Book <i>Interactive Writing</i> – Thanksgiving <i>Math</i> – Grouping: Fewer Than...	14 <i>Literacy</i> – Letter 'H' Problem Solving Book <i>Interactive Writing</i> – Thanksgiving <i>Math</i> – Grouping: More/Fewer Than...	15 <i>Literacy</i> – Letter 'H' Problem Solving Book <i>Interactive Writing</i> – Thanksgiving <i>Math</i> – Grouping: Counting Objects	16 <i>Literacy</i> – Letter 'H' Problem Solving Book <i>Interactive Writing</i> – Thanksgiving <i>Math</i> – Grouping: One More...	17
18 Sight Words: be, you	19 <i>Literacy</i> – Letter 'I' Problem Solving Book <i>Interactive Writing</i> – Thanksgiving <i>Math</i> – Grouping: One Fewer...	20 <i>Literacy</i> – Letter 'I' Problem Solving Book <i>Interactive Writing</i> – Thanksgiving <i>Math</i> – Grouping: Review Games	21 1:00pm Closing <i>Literacy</i> – Letter 'I' Problem Solving Book <i>Interactive Writing</i> – Thanksgiving	22 Thanksgiving Holiday	23 Thanksgiving Holiday	24
25 Sight Words: will, are	26 <i>Literacy</i> – Letter 'J' Problem Solving Book <i>Interactive Writing</i> – Thanksgiving <i>Math</i> – Numbers: 1, 2, 3	27 <i>Literacy</i> – Letter 'J' Problem Solving Book <i>Interactive Writing</i> – Thanksgiving <i>Math</i> – Numbers: 1, 2, 3	28 <i>Literacy</i> – Letter 'J' Problem Solving Book <i>Interactive Writing</i> – Thanksgiving <i>Math</i> – Numbers: 1, 2, 3	29 <i>Literacy</i> – Letter 'J' Problem Solving Book <i>Interactive Writing</i> – Publish Book <i>Math</i> – Numbers: 4, 5	30 <i>Literacy</i> – Letter 'J' Problem Solving Book <i>Interactive Writing</i> – Publish Book <i>Math</i> – Numbers: 4, 5	

Courtesy: Mark Williams, NJ '00

Remediation Strategies

It can be difficult to maintain progress toward achieving your goals when students lack the prerequisite knowledge and skills necessary for mastering grade-level content. The following strategies are ways to help integrate remediation into your everyday instruction.

- Including review or practice of those objectives in daily Do Nows/morning messages
- Revisiting “old” ideas and skills through new methods and new connections
- Partnering with teachers from other disciplines to have them reinforce and review common skills
- Inserting a weekly/bi-weekly review day into unit plan
- Scaffolding independent practice so that it starts with prerequisite objectives and works up to more challenging, current objectives
- Including questions related to previously-taught objectives in guided practice
- Building in practice with those skills/content through classroom centers
- Teaching grade level concepts but differentiating assessment materials according to pre-requisite skills while building these simultaneously in another venue
- Offering differentiated homework assignments to ensure that students can continue to practice skills/content they need
- Using grouping strategies that allow peers to tutor each other on specific objectives
- Tutoring students on objectives which they have not mastered before or after school
- Offering small group instruction to re-teach content/skills explicitly

Sample Unit Plan and Assessment

Unit Background			
Unit Number and Title:	Unit 1: Prime Time – Factors and Multiples	Grade Level:	6
Subject/Topic:	Mathematics		
Key Words:	Factorization, estimate, fraction, integer, positive, negative, decimal, inverse, prime, composite		
Length (in weeks / days):	4 weeks/20 days	Advisory:	1

1st Unit Plan Goal		
<p>Technical: Each of my students will master all 6 standards for this unit and score at least an 80% on the 1st Unit Test and the Performance Assessment. When my students achieve this, it will mean that they will be able to understand how operations relate (multiplication & repeated addition; addition & subtraction), use estimation to solve problems, choose appropriate operations to solve problems (when it is not given explicitly), and apply number theory concepts to solve problems (a 7th grade skill). Achieving this 1st Unit Goal will mean that all students will be ready to begin unit 2.</p> <p>Motivating Vision of Student Success: We will be able to quickly estimate and determine how reasonable the estimate is. We will be able to choose, identify and use the correct operation (addition, subtraction, multiplication, and division) to solve a multi-step, real-world word problem.</p>		
1st Unit Plan – Planning for Assessment		
<p>How will I measure my 1st Unit Goal?</p> <ul style="list-style-type: none"> • 1st Unit Test • Performance Assessment – students will: <ol style="list-style-type: none"> 1. Determine a budget and costs for their own stand (ex: lemonade, juice, bagels, donuts). 2. Use estimations to project/extrapolate information (Ex: How long would it take you to walk a mile to the movies if it takes you ____ seconds to walk 10 meters?). <p>How will I measure progress toward the 1st Unit Goal?</p> <ul style="list-style-type: none"> • Weekly quiz to assess progress • Daily warm-ups in math journal (some timed, some essays) 		
1st Unit Plan – What’s the Big Idea?		
<ol style="list-style-type: none"> 1. Relating numbers in different forms. 2. Computational fluency. 		
1st Unit Plan – Enduring Understandings	1st Unit Plan – Essential Questions	1st Unit Plan – Tasks
<p>To meet the standards, students will need to understand that:</p> <ul style="list-style-type: none"> • Rational numbers can be compared and ordered. • Operations follow an 	<p>To understand, students will need to consider such questions as:</p> <ul style="list-style-type: none"> • How can I quickly solve problems and judge whether or not my answer is reasonable? 	<p>What are the tasks implied by the verbs in the standards?</p> <ul style="list-style-type: none"> • Selecting and using the appropriate operations in a multi-step, real-world

<p>order of rules and must be chosen appropriately.</p> <ul style="list-style-type: none"> Operations are related in various ways There are strategies to estimate the results of rational-number computations and judge the reasonableness of the results. 	<ul style="list-style-type: none"> How are numbers related to each other? How are operations related to each other? How do I choose the appropriate operation to solve a problem? 	<p>contextual problem</p> <ul style="list-style-type: none"> Using estimations and determining the reasonableness of the results
---	--	---

1st Unit Plan– Achievement Targets

<p>To understand, students will need to <i>have knowledge of</i>:</p> <p>Number Theory:</p> <ul style="list-style-type: none"> Prime numbers Composite Numbers Least Common Factor Greatest Common Multiple <u>Potential Misunderstanding</u>: A number can be divisible by more than one number (ex: 20 is divisible by 2, 5, 4, and 10) <u>Potential Misunderstanding</u>: More than one number can be divisible by the same number (ex: both 6 and 9 are divisible by 3). <u>Potential Misunderstanding</u>: Another one might be confusing GCF with LCM....lots of kids confuse these <u>Potential Misunderstanding</u>: Students might also not understand why 0 and 1 are neither prime nor composite – to remedy this misunderstanding the following might be helpful to know: <p>A prime number has exactly two positive divisors – itself and the number one. The number one has only one positive divisor. It cannot be written as a product of two factors (not including itself), so one is also not composite. It falls in a class of numbers called units. These are the numbers whose reciprocals are also whole numbers.</p> <p>Zero is neither a prime nor a composite number. Zero has an infinite number of divisors (any non-zero whole number divides zero). It cannot be written as a product of two factors (not including itself), so zero is also not composite. It falls in a class of numbers called zero-divisors. These are numbers that, when multiplied by some non-zero number, result in a product of zero.</p> <p>The most important fact of multiplication of integers is called the Fundamental Theorem of Arithmetic. It says that</p>	<p>To understand, students will need to <i>be able to</i>:</p> <p><u>Number Theory</u>:</p> <ul style="list-style-type: none"> Apply number theory concepts – including prime and composite numbers; prime factorization; greatest common factor; least common multiple; and divisibility rules for 2, 3, 4, 5, 6, 9, and 10 – to the solution of problems Use prime factorization to add and subtract fractions with like and unlike denominators. <p><u>Estimation</u>:</p> <ul style="list-style-type: none"> Estimate results of computations with whole numbers and with positive fractions, mixed numbers, decimals, and percentages Determine how reasonable the estimate is <p><u>Computations</u>:</p> <ul style="list-style-type: none"> Choose the appropriate operation to solve problems involving addition, subtraction, multiplication, division, Accurately and efficiently add, subtract, multiply, and divide (with multi-digit divisors) whole numbers and positive decimals. Translate multiplication of a negative number by a positive integer as repeated addition. Use a number line to model addition and subtraction of integers and add and subtract integers. Show that integer subtraction is the inverse of integer addition
---	--

Instructional Planning & Delivery

<p>every whole number greater than one can be written *uniquely* (except for their order) as the product of prime numbers. This is so important that we tailor our idea of what a prime number is to make it true. If 1 were a prime number, this would be false, since, for example,</p> $7 = 1*7 = 1*1*7 = 1*1*1*7 = \dots,$ <p>and the uniqueness would fail.</p> <p>Estimation:</p> <ul style="list-style-type: none"> • Rounding • <u>Potential Misunderstanding:</u> Estimations are the exact answer. • <u>Potential Misunderstanding:</u> All estimations are correct. <p>Computations:</p> <ul style="list-style-type: none"> • Inverse operations • Positive and negative integers • Number lines as models • <u>Potential Misunderstanding:</u> You can choose any operation if it's not specified. • <u>Potential Misunderstanding:</u> Multiplying two by three is the same as multiplying 2 x 2 x 2 <p>Vocabulary: Place Value; Fraction; Equivalent; Decimal; Positive; Negative; Integer; Terminating; Repeating; Compare; Order; Factor; Multiple; Addition; Subtraction; Multiplication; Prime; Composite; Division (separating elements of a set into smaller equal sets, sharing equally, or repeatedly subtracting the same number); Factorization</p> <p><u>Symbols:</u></p> <ul style="list-style-type: none"> • +, -, /, (divide symbol), decimal point, \$ 	
--	--

Steps 2 and 3: Misunderstandings & Lesson Objectives				
Standard <i>Connected Math Learning Goal</i>	Daily Lesson Objective(s)	# of days 1 day	Potential Misunderstandings	Lesson Plan Notes

		= xx min.		
<i>CM Learning Goal: Find equivalent names for numbers</i>	<p>SWBAT identify the place value of whole numbers up to the millions place.</p> <p>SWBAT identify numbers in numeric form and expanded notation.</p>	$\frac{1}{2}$		<ul style="list-style-type: none"> Place value chart Compare annual salaries of different jobs
<p>6.NSO-C.9. Know integer subtraction is the inverse of integer addition; use the number line to model addition and subtraction of integers and add and subtract integers.</p> <p><i>CM Learning Goal: Compare and order positive and negative numbers</i></p>	<p>SWBAT compare and order positive and negative numbers on a number line</p> <p>SWBAT compare and order positive and negative numbers without a number line</p> <p>SWBAT explain how to add and subtract integers on a number line.</p> <p>SWBAT write the inverse expression of addition or subtraction.</p>	3		<ul style="list-style-type: none"> Have students make their own number lines to use Number line posted in the room with positive and negative numbers (-50 to 150)
<p>6.NSO-N.6 Apply number theory concepts – including prime and composite numbers; prime factorization; greatest common factor; least common multiple; and divisibility rules for 2,3,4,5,6,9, and 10 – to the solution of problems.</p> <p>CM Learning Goal: Find the least common multiple of two numbers</p> <p><i>Find the greatest common factor of two numbers</i></p>	<p>SWBAT classify numbers as prime or composite.</p> <p>SWBAT multiply single and multi-digit whole positive numbers.</p> <p>SWBAT divide single and multi-digit whole positive numbers.</p> <p>SWBAT factor numbers using a factor tree.</p> <p>SWBAT use the divisibility rules for 2, 3, 4, 5, 6, 9, and 10 when factoring numbers.</p> <p>SWBAT use the divisibility rules for 2, 3, 4, 5, 6, 9, and 10 to identify which numbers in a list are divisible by a given number.</p> <p>SWBAT compare factors from two numbers to identify the greatest common factor.</p>	6	<ul style="list-style-type: none"> <u>Potential Misunderstanding</u>: A number can be divisible by more than one number (ex: 20 is divisible by 2, 5, 4, and 10) <u>Potential Misunderstanding</u>: More than one number can be divisible by the same number (ex: both 6 and 9 are divisible by 3). <u>Potential Misunderstanding</u>: Confusing Greatest Common Factor and Least Common Multiple <u>Potential Misunderstanding</u>: Neither 	<ul style="list-style-type: none"> Factor trees “Prime Time” activity to practice <p><u>Zero and One Misunderstanding</u>: A prime number is one with exactly two positive divisors, itself and one. One has only one positive divisor. It cannot be written as a product of two factors (not including itself), so one is also not composite. It falls in a class of numbers called units. These are the numbers whose reciprocals are also whole numbers.</p> <p>Zero is not a prime or a composite number either. Zero has an infinite number of divisors (any nonzero whole number divides</p>

Instructional Planning & Delivery

	<p>SWBAT list multiples of numbers.</p> <p>SWBAT find the least common multiple when given two numbers.</p>		<p>zero nor one is a prime number</p>	<p>zero). It cannot be written as a product of two factors (not including itself), so zero is also not composite. It falls in a class of numbers called zero-divisors. These are numbers such that, when multiplied by some non-zero number, the product is zero.</p> <p>The most important fact of multiplication of integers is called the Fundamental Theorem of Arithmetic. It says that every whole number greater than one can be written *uniquely* (except for their order) as the product of prime numbers. This is so important that we tailor our idea of what a prime number is to make it true. If 1 were a prime number, this would be false, since, for example,</p> $7 = 1 \cdot 7 = 1 \cdot 1 \cdot 7 = 1 \cdot 1 \cdot 1 \cdot 7 = \dots,$ <p>and the uniqueness would fail.</p>
6.NSO-C.11. Use prime factorization to add and subtract fractions with like and unlike denominators.	<p>SWBAT add and subtract fractions with a common denominator.</p> <p>SWBAT convert fractions to a common denominator using prime factorization.</p> <p>SWBAT add and subtract fractions with unlike denominators.</p> <p>SWBAT simplify the fraction.</p>	3		<ul style="list-style-type: none"> Manipulatives / visuals for fraction representations
6.NSO-E.18. Estimate results of computations with whole	SWBAT round numbers to the nearest or most appropriate whole		<ul style="list-style-type: none"> <u>Potential Misunderstanding:</u> 	<ul style="list-style-type: none"> Measuring tape, meter stick, timers

numbers....Determine reasonableness of estimates. <i>CM Learning Goal: Estimate quotients and divide whole numbers</i>	<p>number or place value.</p> <p>SWBAT estimate answers when multiplying by multiplying and numbers and adding the appropriate number of zeroes.</p> <p>SWBAT estimate quotients for whole numbers.</p> <p>SWBAT complete single step estimation word problems.</p> <p>SWBAT complete multi-step estimation word problems.</p>	3	<p>Estimations are the exact answer.</p> <ul style="list-style-type: none"> • <u>Potential Misunderstanding</u>: All estimations are correct. 	<p>for projecting pace</p> <ul style="list-style-type: none"> • Distances to local attractions (ex: Movie theatre, mall, pizza palace)
6.NS0-C.10. Accurately and efficiently add, subtract, multiply, and divide (with multi-digit divisors) whole numbers and positive decimals. CM Learning Goal: Mentally add 1-digit positive and negative numbers	<p>SWBAT accurately and efficiently add, subtract, and multiply within a set time period.</p> <p>SWBAT divide with single and multi-digit divisors within a set time period.</p> <p>SWBAT add and subtract positive decimals within a set period of time.</p> <p>SWBAT multiply and divide positive decimals within a set period of time.</p> <p>SWBAT choose which operation is appropriate for a given situation.</p>	$\frac{1}{2}$ *	<ul style="list-style-type: none"> • <u>Potential Misunderstanding</u>: You can choose any operation if it's not specified. 	<ul style="list-style-type: none"> • Around the world competition with students mentally adding one digit positive and negative numbers • Math minutes as warm ups for two weeks
6.NS0-C.16. Understand multiplication of a negative number by a positive integer as repeated addition.	<p>SWBAT multiply positive and negative numbers.</p> <p>SWBAT explain the relationship between multiplication as being repeated addition, with using positive and negative numbers.</p>	1	<ul style="list-style-type: none"> • <u>Potential Misunderstanding</u>: Ex: Multiplying two by three is the same as multiplying 2 x 2 x 2 	<ul style="list-style-type: none"> • Use number line • Check answer both ways
Unit Diagnostic, Review, and Assessment		2.5		
Total		2		

* Since I included this as a part of the warm up for two weeks, I have one extra day on my calendar.

Instructional Planning & Delivery

Step 4: Sequencing & Scaffolding Objectives on Calendar				
September	Tuesday	Wednesday	Thursday	Friday
<p>4</p> <p>LABOR DAY</p>	<p>5</p> <p>UNIT DIAGNOSTIC</p> <p>SWBAT identify the place value of whole numbers up to the millions place.</p> <p>SWBAT identify the number with the proper expression.</p>	<p>6</p> <p>SWBAT compare and order positive and negative numbers on a number line</p> <p>SWBAT compare and order positive and negative numbers without a number line .</p>	<p>7</p> <p>SWBAT write the inverse expression of addition or subtraction</p>	<p>8</p> <p>SWBAT explain how to add and subtract integers on a number line.</p> <p>WEEKLY ASSESSMENT</p>
<p>11</p> <p>SWBAT multiply single and multi-digit whole positive numbers.</p> <p>SWBAT divide single and multi-digit whole positive numbers.</p>	<p>12</p> <p>SWBAT classify numbers as prime or composite.</p> <p>SWBAT factor numbers using a factor tree.</p>	<p>13</p> <p>SWBAT use the divisibility rules for 2, 3, 4, 5, 6, 9, and 10 when factoring numbers.</p>	<p>14</p> <p>SWBAT use the divisibility rules for 2, 3, 4, 5, 6, 9, and 10 to identify which numbers in a list are divisible by a given number.</p>	<p>15</p> <p>SWBAT compare factors from two numbers to identify the greatest common factor.</p> <p>SWBAT list multiples of numbers.</p> <p>WEEKLY ASSESSMENT</p>
<p>18</p> <p>WARM UP: SWBAT accurately and efficiently add, subtract, and multiply within a set time period.</p> <p>Lesson: SWBAT find the least common multiple when given two numbers.</p>	<p>19</p> <p>WARM UP: SWBAT accurately and efficiently add, subtract, and multiply within a set time period.</p> <p>Lesson: SWBAT add and subtract fractions with a common denominator.</p>	<p>20</p> <p>WARM UP: SWBAT divide with single and multi-digit divisors within a set time period.</p> <p>Lesson: SWBAT convert one fraction to another denominator using prime factorization.</p>	<p>21</p> <p>WARM UP: SWBAT divide with single and multi-digit divisors within a set time period.</p> <p>Lesson: SWBAT add and subtract fractions with unlike denominators.</p>	<p>22</p> <p>SWBAT round numbers to the nearest or most appropriate whole number or place value.</p> <p>SWBAT estimate answers when multiplying numbers and adding the appropriate number of zeroes.</p> <p>WEEKLY ASSESSMENT</p>

25 WARM UP: SWBAT add and subtract positive decimals within a set period of time. Lesson: SWBAT estimate quotients for whole numbers. SWBAT complete single step estimation word problems. .	26 WARM UP: SWBAT add and subtract positive decimals within a set period of time. Lesson: SWBAT complete multi-step estimation word problems. SWBAT choose which operation is appropriate for a given situation.	27 WARM UP: SWBAT multiply and divide positive decimals within a set period of time Lesson: SWBAT multiply positive and negative numbers. SWBAT explain the relationship of multiplication as being repeated addition, using positive and negative numbers.	28 WARM UP: SWBAT multiply and divide positive decimals within a set period of time	29 UNIT REVIEW
October 2 UNIT ASSESSMENT				

Sample Unit Assessment

NAME: _____
DATE: _____

ID	Standard	Question Number(s)	# Points Correct	# Points Possible	Mastery (%)
C.9	NSO-C.9: Know integer addition and subtraction; use a number line.	3, 13		2	
N.6	NSO-N.6: Apply number theory concepts and divisibility rules.	9, 14		3	
C.11	NSO-C.11: Add and subtract fractions	1, 7		2	
E.18	NSO-E.18: Estimation of whole numbers.	4, 8, 10		4	
C.10	NSO-C.10: Select operations and calculate.	5, 12		3	
C.16	NSO-C.16: Multiplication of positive integer by a negative integer.	6, 11		2	
CM1	CM Goal: Equivalent names for numbers.	2		1	
	TOTAL			20	

1) Adrian bought 7/12 pounds of cheese. Carl bought 5/12 pounds of cheese.

How many more pounds of cheese did Adrian buy than Carl? [C.11]

- A

12

12
- B

2

12
- C

2

6
- D

1

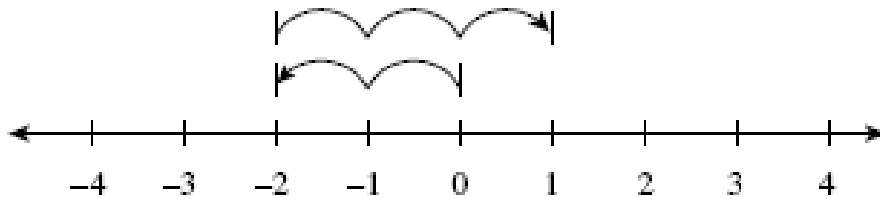
6

2) Steve scored 1,086,000 points in a video game. [CM.1]

Which expression is equal to the number of points Steve scored?

- A $100 + 80 + 6$
- B $1,000 + 80 + 6$
- C $100,000 + 80,000 + 6,000$
- D $1,000,000 + 80,000 + 6,000$

3) Which number sentence is represented on the number line shown below? (C.9)



- A $-2 + (-3) = 1$
- B $1 + (-2) = -2$
- C $1 - (+2) = -1$
- D $-2 + 3 = 1$

4) Kim sold 315 boxes of cards. She earned \$2.90 per box sold.

Which is the **most reasonable** estimate for the total amount of money Kim earned selling cards? (E.18)

- A \$100
- B \$600
- C \$900
- D \$1200

Instructional Planning & Delivery

5) Ms. Timer's class of 25 students went to the local zoo. The total admission cost for the 25 students was \$56.25. .
The admission cost was the same for each student. What was the admission cost for each student? (C.10)

- A** \$2.15
- B** \$2.20
- C** \$2.25
- D** \$2.50

6) Which is equivalent to: $-3 + (-3) + (-3) + (-3)$? (C.16)

- A** $-3 \times (-4)$
- B** $(-3)^4$
- C** $(-3)^3$
- D** -3×4

7) Esther ate $\frac{2}{7}$ of a pizza, while her younger brother, Emmanuel, ate $\frac{1}{3}$ of the pizza.

How much of the total pizza did Esther and Emmanuel eat? (C.11)

- A** $\frac{3}{10}$
- B** $\frac{3}{21}$
- C** $\frac{13}{21}$
- D** $\frac{17}{21}$

8) Students in Mr. Jacob's English class were giving speeches. Each student's speech was 7 to 10 minutes long. Which of the following is the **best** estimate for the total number of student speeches that could be given in a two-hour class? (E.18)

- A** 4 speeches
- B** 8 speeches
- C** 13 speeches
- D** 19 speeches

9) Which of the following number(s) are divisible by 3? (N.6)

- a) 35
- b) 43
- c) 51
- d) 60
- e) 111
- f) 160
- g) 4,380

- A** C, D, E, G
- B** A, B, G
- C** A, B, C, E
- D** A, B, E, G

10) Marcus walks 1 mile to school each day. He walks the same distance home. However, after school on Monday, Wednesday, and Friday he gets a ride to go to band practice.

Which of the following is **the most reasonable** estimate for how much Marcus has walked over the course of the school year? How did you decide? (E.18)

- a) 100 miles
- b) 210 miles
- c) 275 miles
- d) 315 miles

Note: The school year is 9 months, from the 1st week of September through the last week of May.

In the space below, write the letter of the correct answer and explain how you got that answer:

Instructional Planning & Delivery

11) Which of the following expressions is equivalent to the one below: (C.16)

$$-7 \times 4$$

- A** $-7 + (-7) + (-7) + (-7)$
- B** $-7 \times (-7) \times (-7) \times (-7)$
- C** $-7 \times (-4)$
- D** $(-7)^4$

12) Carolyn and Kim are selling lemonade this summer. It costs \$0.10 to make each cup of lemonade. They are going to sell each cup of lemonade for \$0.25. (C.10)

- a. What is the total cost of making 55 cups of lemonade? Show or explain your work.
- b. If they sell 55 cups of lemonade, what is the amount of money they will collect? Show or explain your work.
- c. If they sell 55 cups of lemonade, how much more money would they collect than they would spend? Show or explain your work.
- d. What is the least number of cups of lemonade they need to sell in order to collect \$10.00 **more** than they spend? Show or explain your work.

In the space below, answer each letter and show or explain how you got your answer:

13) On Nyaira's homework, the answer to the subtraction problem shown below was marked wrong. [C.9]

$$\begin{array}{r} 178 \\ - 59 \\ \hline 129 \end{array}$$

Which of the following is one way for her to discover that her answer is wrong?

- A** $129 - 59 = 70$
- B** $129 + 59 = 188$
- C** $178 + 129 = 307$
- D** $178 + 59 = 237$

14) A local bakery celebrated its one-year anniversary on Saturday. On that day, every 4th customer received a free cookie. Every 6th customer received a free muffin. (N.6)

- a. Did the 30th customer receive a free cookie, a free muffin, both, or neither? Show or explain how you got your answer.
- b. Casey was the first customer to receive both a free cookie and a free muffin. What number customer was Casey? Show or explain how you got your answer.

In the space below, answer both parts and show or explain how you got your answer.

Designing Lesson Objectives That Address the Appropriate Cognitive Level

Cognitive Level	Useful Verbs	Sample Objectives
Knowledge Recognizing and recalling information.	Tell list relate locate write find state name	When shown an exclamation point, a student will identify it by name. The student will be able to list all of the noble gases and their atomic weight. The student will be able to record the roots of 8 of the 10 graphed quadratic equations.
Comprehension Understanding the meaning of information.	Explain outline discuss distinguish predict restate translate compare describe	The student will describe the use of an exclamation point. After reading a short story, the student will be able to summarize the main conflict in one paragraph (at least five sentences). After studying World War II, the student will be able to explain the conditions in Europe and Asia that led to the war.
Application Using information.	Solve show use illustrate calculate construct complete examine classify	The student will use an exclamation point in a sentence. Using two distinctly different algorithms, the student will be able to solve two-digit subtraction problems. The student will prepare a graph that shows the mean temperature of the Pacific ocean over the past twenty years.
Analysis Dissecting information into its component parts to see their relationships.	Analyze distinguish examine compare contrast investigate categorize identify explain separate	The student will identify an exclamation point's misuse in a paragraph. Given a sentence, a student will be able to identify the major parts of speech. The student will be able to break down a chemical spill into different pathways for human exposure.
Synthesis Putting components together to form new ideas.	Create invent compose predict plan construct design imagine improve propose devise formulate elaborate	The student will use exclamation points, questions marks, and periods appropriately in a piece of writing. Given the materials, a student will be able to create a kite that adheres to the qualities (e.g. aspect ratio, surface area to weight ratio) of a successful design. The student will compose a persuasive essay that directly connects to an issue of personal relevance.

<p>Evaluation Judging the worth of an idea.</p>	<p>judge select choose decide justify debate verify argue recommend discuss determine prioritize assess</p>	<p>The student can evaluate the effective use of exclamation points in creating the mood in a descriptive passage.</p> <p>Students will be able to argue, either for or against, the implications in cloning human beings.</p> <p>Given a social conflict, the student will be able to recommend strategies that will facilitate a peaceful resolution.</p>
--	---	---

Five Step Lesson Plan Framework

VISION-SETTING	OBJECTIVE. What is your objective? <input type="checkbox"/>	KEY POINTS. What knowledge and skills are embedded in the objective? <input type="checkbox"/>
	ASSESSMENT. Describe, briefly, what students will do to show you that they have mastered (or made progress toward) the objective. <input type="checkbox"/> Attach your daily assessment, completed to include an exemplary student response that illustrates the expected level of rigor. <input type="checkbox"/> <i>Indicate whether you will administer the assessment as the independent practice or during the lesson closing.</i>	
	CONNECTION TO THE SUMMER ACHIEVEMENT GOAL. How does the objective connect to the summer achievement goal? <input type="checkbox"/>	
DETERMINING METHODS		
	4. OPENING (__ min.) How will you communicate <i>what</i> is about to happen? <input type="checkbox"/> How will you communicate <i>how</i> it will happen? <input type="checkbox"/> How will you communicate its <i>importance</i> ? <input type="checkbox"/> How will you communicate <i>connections</i> to previous lessons? <input type="checkbox"/> How will you engage students and capture their interest? <input type="checkbox"/>	MATERIALS.
	3. INTRODUCTION OF NEW MATERIAL (__ min.) How will you explain/demonstrate all knowledge/skills required of the objective, so that students begin to actively internalize key points? <input type="checkbox"/> Which potential misunderstandings do you anticipate? How will you proactively mitigate them? <input type="checkbox"/> How/when will you check for understanding? How will you address misunderstandings? <input type="checkbox"/> How will you clearly state and model behavioral expectations? <input type="checkbox"/> Why will students be engaged? <input type="checkbox"/>	
	2. GUIDED PRACTICE (__ min.) How will students practice all knowledge/skills required of the objective, with your support, such that they continue to internalize the key points? <input type="checkbox"/> How will you ensure that students have multiple opportunities to practice, with exercises scaffolded from easy to hard? <input type="checkbox"/> How/when will you monitor performance to check for understanding? How will you address misunderstandings? <input type="checkbox"/> How will you clearly state and model behavioral expectations? <input type="checkbox"/> Why will students be engaged? <input type="checkbox"/>	
	1. INDEPENDENT PRACTICE (__ min.) How will students attempt independent mastery of all knowledge and/or skills required of the objective, such that they solidify their internalization of the key points? <input type="checkbox"/> How will you provide opportunities for remediation and extension? <input type="checkbox"/> How will you clearly state and model behavioral expectations? <input type="checkbox"/> Why will students be engaged? <input type="checkbox"/>	
	5. CLOSING (__ min.) How will students summarize and state the significance of what they learned? <input type="checkbox"/> If the independent practice did not serve as an assessment, how will students attempt independent mastery of the knowledge and/or skills introduced and practiced above? <input type="checkbox"/> Why will students be engaged? <input type="checkbox"/>	
	HOMEWORK (if appropriate). How will students practice what they learned? <input type="checkbox"/>	

Alternative Lesson Plan Formats

Each state, district, and school has a different policy on lesson plan formats. There is no one standard methodology, and some schools will be much more prescriptive than others. Below are three common methods of lesson planning for different content areas. However, whatever lesson plan format you encounter, you will be able to apply the basic concepts of lesson design that are outlined in Chapter 5.

THE SEVEN STEP LESSON PLAN—THE STRUCTURE

Lesson Opening	(1) Objective Defines the specific, measurable skills or behaviors students will know and be able to do by the conclusion of the lesson. You might also include how the objective connects and leads to the attainment of the broader curricular goal.
	(2) Motivation Also called the “focus” or “hook,” this describes how you will hook students into the lesson. A motivation can work by investing the students in the relevance of the materials to be covered, piquing their curiosity, or simply warming them up to the lesson.
Introduction of New Material	(3) Introduction of New Material / Directed Lesson Sequence Describes the instructional strategies or activities through which the bulk of the new knowledge will be conveyed to students. The strategies can take the form of direct instruction, a teacher-facilitated discussion, or student-driven learning activities like experiments, peer learning, or the reading of secondary source books.
Student Practice of New Material	(4) Guided Practice Articulates what activities you will use to enable students to apply new knowledge or practice new skills with close guidance and feedback from you and from peers.
	(5) Independent Practice Outlines how students will practice their new skills or knowledge independently to reinforce and demonstrate individual achievement of the specific objective. This step may include homework.
	(6) Alternate and Supplementary Activities Identifies additional activities that can provide enrichment or reinforcement of the lesson just taught.
Closing	(7) Assessment Outlines the assessment strategies that will be used to measure student achievement of the specific objective.

Instructional Planning & Delivery

THE SEVEN STEP LESSON PLAN – AN EXAMPLE

Lesson Opening	Objective: Students will be able to distinguish and apply the differences between formal and casual language.
	Motivation: I will tell students that they have been invited to two different parties. One is the White House Inaugural Ball. While I hand out copies of the invitation to each student, I will play classical music in the background. We will then read through the invitation together. Then, I will pass out the second invitation (to a dance party hosted by the school student council). I will play contemporary music while students are receiving this invitation. We will read through this invitation together.
Introduction of New Material	Directed Lesson Sequence: As a whole group, we will make a Venn Diagram comparing and contrasting the two invitations and discussing the differences between the “formal” and “casual” language exhibited. Using our Venn Diagram and two invitations, we will then use a graphic organizer to outline the characteristics of formal and casual levels of language and the contexts in which each is appropriate.
Student Practice of New Material	Guided Practice: I will read various short texts (dialogues, invitations, letters) and ask students to determine if formal or casual language is used.
	Independent Practice: Students will write a letter in response – using the appropriate language – to the two invitations they received at the beginning of class.
	Alternate and Supplementary Activities: For homework that night, students will analyze two letters (one to a friend, one to a manufacturer). They will circle and analyze (in a Venn Diagram) the differences between the formal/casual languages used in the two letters.
Closing	Assessment: In the final 5-10 minutes of the class period, I will ask students to stop working on their letters. I will give each student a “ticket to leave” (1/4 of a piece of paper) and ask them to write down a brief description of the characteristics of formal language and when it is used (IN formal language) and a brief description of the characteristics of casual language and when it is used (IN casual language). If time permits, I will ask a few students to share their responses. I will collect all “tickets” at the door as students are leaving.

Read Aloud Lesson Plan

PRE-PLANNING	OBJECTIVE. What will your students be able to do?	CONNECTION TO THE SUMMER ACHIEVEMENT GOAL. How does the objective connect to the summer achievement goal?
	(INFORMAL) ASSESSMENT. How will you know whether your students have made progress toward the objective? How and when will you assess mastery?	
	KEY POINTS. What big ideas in the text will you emphasize? What will students learn about using the strategy/ies?	
LESSON CYCLE	PRE-READING. (__ min.) What prior knowledge will you activate? Focus on knowledge needed to understand the big ideas. What background information will you share? Which vocabulary words will you pre-teach? Choose 2-3 words that are critical to understanding the big ideas. Which strategy/ies will you introduce? How will you do so? How will you engage students and capture their interest?	MATERIALS. What text will you use? What other materials do you need?
		Title: Author: Other Materials:
	DURING READING. (__ min.) Where will you stop to think aloud about your strategy use? <ul style="list-style-type: none"> How will your use of strategy/ies facilitate student understanding of the big ideas in the text? Include page numbers and explain your rationale. How will you include students in this process? How will you check for understanding of the strategy/ies? How will you clearly state and model behavior expectations? Why will students be engaged/interested?	
	POST READING. (__ min.) How will students summarize what they learned about the strategy/ies and the text? How will students be asked to state the significance of what they learned? How will you provide all students with opportunities to demonstrate mastery of or progress toward the objective? Why will students be engaged/interested?	
REINFORCEMENT	HOMEWORK (if appropriate). How will students practice what they learned?	

Instructional Planning & Delivery

READ ALOUD LESSON PLAN – EXAMPLE (5TH GRADE)

PRE-PLANNING	OBJECTIVE. What will your students be able to do?	CONNECTION TO THE SUMMER (BIG) GOAL. How does the objective connect to the summer (big) goal?
	SWBAT locate cause-and-effect relationships in an expository text.	When students use text structures like cause-and-effect to organize their reading and writing, they are more effective readers and writers, improving their ability to independently read and analyze texts.
	(INFORMAL) ASSESSMENT. How will you know whether your students have made progress toward the objective? How and when will you assess mastery?	
	Students will complete cause-and-effect graphic organizer.	
	KEY POINTS. What big ideas in the text will you emphasize? What will students learn about using the strategy/ies?	
	-Causes have effects and effects have causes. There are reasons or causes why certain things happen; when those things happen, they create a result or an effect. -Authors use particular words to help you identify cause-and-effect relationships. Some of these include cause , effect , if , then , as a result , therefore , and because .	
LESSON CYCLE	PRE-READING. (10 min.) What prior knowledge will you activate? Focus on knowledge needed to understand the big ideas. What background information will you share? Which vocabulary words will you pre-teach? Choose 2-3 words that are critical to understanding the big ideas. Which strategy/ies will you introduce? How will you do so? How will you engage students and capture their interest?	
	MATERIALS. What text will you use? What other materials do you need?	
	TITLE: Danger! Volcanoes	
	AUTHOR: Seymour Simon	
	OTHER POSSIBLE TITLES: Branley, F.M., <u>Flash, Crash, Rumble, and Roll, Volcanoes</u> , or <u>What Makes Day and Night</u> or any text with clear cause/effect relationships	
	OTHER MATERIALS: Chart Paper with arrow and rectangle	
	Cause-and-Effect T-chart or web – determine which is more sensible based on your text	
	Scratch paper	
	Add this information to the chart.	
	Introduce the graphic organizer to the students. Explain each part of it, and how it will be used.	
	Explain that students already have some knowledge of cause-and-effect because it happens in every day life.	
	Students know that if they do not study for a test, the effect will be that they will not do well.	

They also know that if they bake cookies that come out burnt, the **cause** was leaving them in the oven too long.

Define cause and effect for students:

- Cause is **why** something happens
- Effect is **what** ends up happening

- *Authors often use cause-and-effect when writing both fiction and non-fiction texts to help you understand the events about which you are reading.*
- *We are going to be reading a non-fiction text today called **Danger! Volcanoes**.*
- *The author uses cause-and-effect throughout to help you understand how things really work.*
- *Sometimes authors use key words like **cause, effect, if, then, as a result, therefore, and because** to indicate a cause-and-effect relationship.*
- *For example, if I were writing a story about Renee, I might say, “Renee got a stomachache because she ate too much too fast,” or “Renee has a stomachache as a result of eating too much too fast.”*
- *These key words help us identify cause and effect.*

Write the key words on the chart paper.

- Let’s get started reading the story.
- Remember to listen for the key words that indicate a cause-and-effect relationship.

DURING READING. (15 min.)

Where will you stop to think aloud about your strategy use?

- How will your use of strategy/ies facilitate student understanding of the big ideas in the text?
- Include page numbers and explain your rationale.

How will you include students in this process? How will you check for understanding of the strategy/ies?

How will you clearly state and model behavior expectations?

Explain that as you read the story, you will be listening for cause-and-effect relationships.

When you find one, you will add it to the graphic organizer. See examples at:

www.readwritethink.org/lesson_images/lesson925/volcano-go.pdf

www.readwritethink.org/lesson_images/lesson925/blank-go.pdf

As you begin to read *Danger! Volcanoes* by Seymour Simon aloud, model the thought process behind discovering cause-and-effect relationships. For example, say something like,

- *As I begin reading Danger! Volcanoes, I see that there are lots of interesting pictures of volcanoes in this book. I bet I will learn some new information about volcanoes when I read this book.*

After reading the second page of the book say,

- *I wonder what **causes** the volcano to erupt. I bet I will learn that when I read further.*

After reading the next page say,

Instructional Planning & Delivery

	<ul style="list-style-type: none"> ▪ <i>I see a key word that makes me think there is a cause-and-effect relationship on this page. The word cause tells me that there is a cause-and-effect relationship described here. The eruption of the volcano can cause 'dangerous slides of lava, rock, ash, mud, and water.' That means that the effects of the volcano erupting are dangerous slides of lava, rock, ash, mud, and water.</i> <p>Add this cause-and-effect relationship to the T-chart or web.</p> <p>Have a signal that students can show that they've heard a word that signals cause-and-effect. Elicit student feedback about responses to include on the graphic organizer.</p> <p>Continue reading the story, adding as many cause-and-effect relationships to the graphic organizer as possible.</p>	
	<p>POST READING. (5 min.)</p> <p>How will students summarize what they learned about the strategy and the text? How will students be asked to state the significance of what they learned? How will you provide all students with opportunities to demonstrate mastery of or progress toward the objective?</p>	
	<p>Have students either A-B Partner Teach or Think-Pair-Share what they learned.</p> <p>For A-B Partner Teach, students should be designated Partner A or Partner B ahead of time. Consider writing their letter on their nameplate.</p> <ul style="list-style-type: none"> ▪ <i>I want Partner A to tell Partner B what a cause is and one key word that indicate a cause-and-effect relationship. Raise your hand if you are the teacher. Go ahead, teach!</i> <p>[Allow time.]</p> <ul style="list-style-type: none"> ▪ <i>I want Partner B to tell Partner A what an effect is and a different key word that indicate a cause-and-effect relationship. Raise your hand if you are the teacher. Teach!</i> <p>[Allow time.]</p> <ul style="list-style-type: none"> ▪ I heard some great teaching going on. I am excited because we will be learning more text-structures throughout the summer and I know you will do just as well. 	
REINFORCEMENT	<p>HOMEWORK (if appropriate). How will students practice what they learned?</p>	

5-E Lesson Plan Model

Topic: _____

Objectives: _____

Standards and Benchmarks addressed: _____

Action
Phase 1: Engage Capture student attention, activate student prior knowledge, stimulate thinking, raise key questions, etc. ²
Phase 2: Explore Allow students to observe, record data, isolate variables, design and plan experiments, create graphs, interpret results, develop hypotheses, and organize their findings.
Phase 3: Explain Introduce laws, models, theories, and vocabulary. Guide students toward coherent generalizations, and help students understand and use scientific vocabulary to explain the results of their explorations
Phase 4: Elaborate Provide students opportunity to apply their knowledge to new domains, raise new questions, and explore new hypotheses. May also include related problems for students to solve.
Phase 5: Evaluate Administer formative assessment (although checking for understanding should be done throughout the lesson)

This model is most often used in science and secondary math classrooms.

² Phase descriptions adapted from Eisenkraft, Arthur. "Expanding the 5 E Model." <http://www.its-about-time.com/htmls/ap/eisenkrafttst.pdf>, accessed 1/4/08

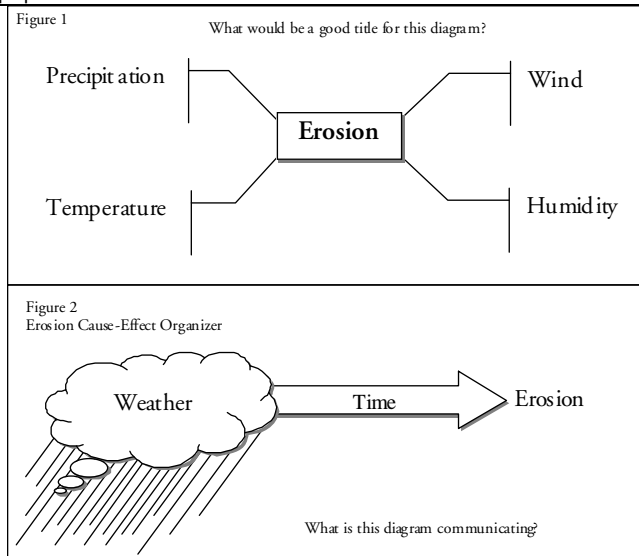
Methods for Opening a Lesson

Remember that an effective lesson opening communicates what is about to happen and why, how it relates to what has been done previously, engages students and captures their interest, and allows students to ask clarifying questions.

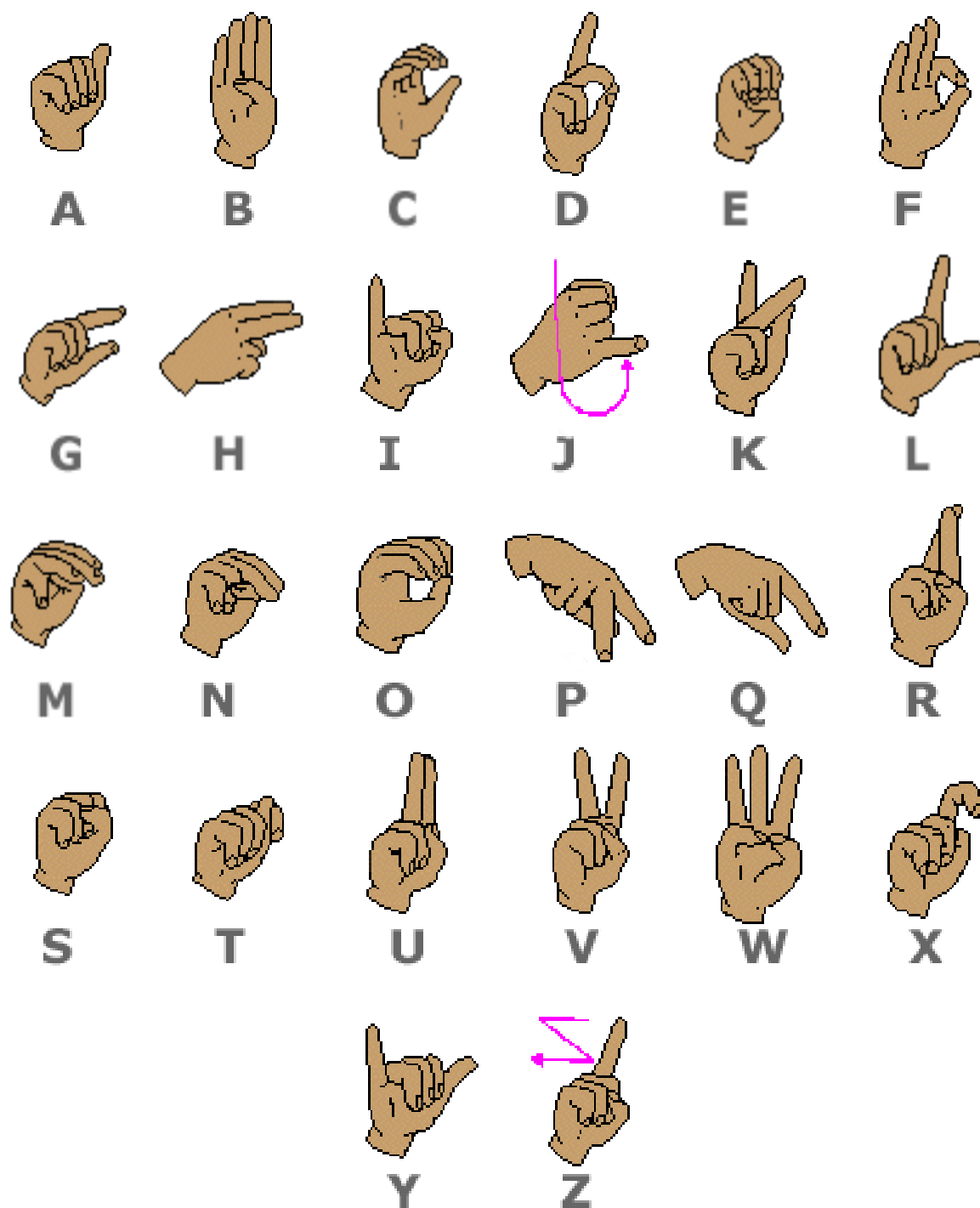
While there are a variety of methods for effectively opening a lesson, what is most important is to choose a method that will be applicable to the lesson objective. The following methods model different openings for the first lesson of an erosion unit after completing a weather unit. These examples can be applied to any subject matter.

Purpose of Opening	Strategies and Examples
To review and connect previous learning	<p>Brainstorm</p> <p>Teacher: "Let us list different components of weather that we just explored and defined." Students: "Temperature, wind, precipitation..." Teacher: "Thank you. Now, I have a question that I thought about the other day when the wind was blowing. Does weather influence what the earth looks like? And if so, how?"</p> <p>Quickwrite</p> <p>A quickwrite is an opportunity for students to quickly respond to a question. There are three distinct benefits of a quickwrite that make it more effective than oral questioning: 1) It is easier to engage all students. 2) It is easier to check the understanding of all students by circulating through the class. 3) Since no individual pressure is placed on the students, it is easier for them to formulate answers. A quickwrite would be used in the same fashion as the oral brainstorm above.</p> <p>Writing Prompt (on board): "On a piece of paper, list the different components of weather that we just explored and defined in our last unit." Time (1 – 2 minutes) – students write. Teacher: "What were your responses?"</p>
To create excitement around the upcoming lesson	<p>KWL</p> <p>When using a KWL chart to develop interest about new material, you may need to do a brief introduction of new terms. Without the clarification of terms, students could struggle to make any contributions.</p> <p>Teacher: "Does anyone know what the word erosion means?" "What do you already know about erosion?" "What are you wondering about erosion?"</p> <p>Quickwrite</p> <p>Writing Prompt (on board): "Has the earth always looked like it does today? If no, how has it changed? What changed it?" Time (2 – 3 minutes) – students write Teacher: "I want to record what everyone thinks about this, so I am going to ask you to share your answers and I am going to write them on the board. After we finish the unit we will review our answers to determine how accurate we were."</p> <p>Demonstrations</p> <p>To create excitement around erosion, a teacher brought in a clay model of the Grand Canyon. The teacher filled the clay canyon with sand. She tilted the Canyon model and began to pour water from the top of the model and students watched it flow to the bottom. Over time all of the sand washed away and the canyon remained. The teacher then asked students to answer the following writing prompt.</p> <p>Writing Prompt: "How does this demonstration relate to the real world?"</p> <p>Sensory Activity</p>

	<p>Play an audio file that captures the sound of howling wind or a storm. Ask students to write (or draw) as they listen, describing what they think is happening to the land where this event is taking place. They can then share their descriptions or drawings with a partner, explaining why they made the choices they made. The teacher then calls on a few pairs to share what they discussed.</p>
<p>To develop student anticipation around the lesson</p>	<p>True False</p> <p>Collecting student responses before a unit begins creates anticipation because students want to determine if their responses were “right.” True – False is a simple way to collect information. A teacher begins the class by asking students to record whether they think the following statements are true or false:</p> <p>T F The earth has not changed significantly over the past ten years. T F Mountains have always looked the same. T F The wind dramatically changes the geography of the earth.</p> <p>Graphic Organizer</p> <p>“Good Morning, class. I have placed on the board a graphic organizer of a process called erosion. You will notice that some of the concepts we talked about in our weather unit are on this diagram. What is this diagram communicating to you about the relationship between weather and erosion? Please write your answer to the question on your own paper.”</p>



Guide to the American Sign Language Alphabet



Methods for Closing a Lesson

Remember that effective lesson closures connect the lesson to the larger unit of study, allow students the opportunity to summarize what they have learned and what they may still be struggling with, and assess student achievement of the objective if not done so prior to that point in the lesson,. Students will retain information and skills better if they are encouraged to reflect upon what they have learned at the end of each lesson or unit, and the teacher will gain a clearer idea of how to focus future instruction. Given the value of an effective lesson closing, you need to be diligent about reserving time at the end of your lesson – perhaps by using a timer or a student time-keeper.

As with all instructional choices, the most important factor in choosing an effective method for closing a lesson is ensuring alignment with the lesson objective. The methods below are adaptable to varied lessons and provide avenues for broad student participation, which will ensure that your lesson closure provides you with the breadth of information you need to assess student progress and guide future planning.

Strategy and Description	Procedure
Speed Round: This teacher or student-led strategy is most effective in closing lessons that were focused on a knowledge, comprehension, or application level and can be done orally or in writing.	Pose a series of review questions and call on students at random to answer – providing wait time after each question to allow students to think before you select someone to respond. After each response, give the rest of the class a chance to agree or disagree with the answer. You might have all students write their responses on individual chalkboards or white boards before calling on anyone. Alternatively, ask students to come up with their own questions related to the day's lesson. Call on one student to share a question and then choose a peer to respond; that person then asks his or her own question and calls on someone else, etc.
Minute Paper: A minute paper is a quick summary of learning. Each student writes for exactly one minute on a prompt that you give the class.	Give the students a writing prompt, such as, "List as many examples as you can of words that include the phonetic blend 'cr'." If time permits, ask students to share their responses with the class. Collect and review the responses to make modifications to future instruction. To adapt for very young students or varied learning modalities, have them draw a "minute picture" in response to a prompt.
Sticking Point: Provides feedback on what was not achieved during the lesson. You should use this information to inform changes in your instruction for the following day.	At the end of the lesson, each student provides you with a question left unanswered or a concept left unclarified. Give the students a writing prompt such as, "What about jurisdiction do you still have questions about after today's lesson?" Alternatively, after teaching your students the concept of a sticking point, you may just ask, "What is a sticking point for you after today's lesson?" If time permits, ask students to share their responses with the class.
One Sentence Summary: Even more focused than the minute paper, this gives a quick assessment of student understanding of the overall lesson objective.	Ask the students to answer in one sentence, "What was the key point of today's lesson?" If time permits, ask students to share their responses with the class. If a wide discrepancy exists, you will want to reflect on why that might of happened and how your instruction can be more focused around a concrete goal the next day.
Paired Summary: Similar to the minute paper, except students discuss and summarize the lesson with a partner.	Place students in pairs to discuss a specific prompt for a short period of time (1 to 2 minutes). E.g., "What observations did we make about our bean plants that support what we have learned about plant growth?" Each pair should jot down the key points of their discussion and then share them with the class at large.

Instructional Planning & Delivery

<p>Make a Metaphor: Asks students to connect what they have learned to something else within their knowledge base. It is particularly effective for closing a lesson in which a difficult or complex concept has been introduced.</p>	<p>Place students in pairs or small groups. Hand them a sheet of paper or some other object that they can manipulate (such as Legos). Give them no more than 4 minutes to do something with that paper so that it serves as a metaphor for the concept they have just learned. For example, you may assign each group of students a different branch of government and ask them to use only that sheet of paper to represent the various ways that their branch can impact an election. Each group then explains their product and gives their rationale for the metaphor.</p>
<p>KWL Chart: see the information on KWL charts elsewhere in the workbook.</p>	<p>Ask students to get out their KWL charts. Direct them to find something in their “Wondering” column that they can now answer in their “Learned” column. Direct them next to place the specific new knowledge they have gained in the “Learned” column. Alternatively, you could ask students what other questions have arisen for them about this topic of study over the course of the class period, and to place it at the bottom of their “Wondering” column.</p>
<p>Leave the Carpet: Accommodates younger students who may not be able to write and can aid in a physical transition from one activity or lesson to another.</p>	<p>Tell students that they can leave the carpet and go back to their desks once they provide a word that begins with the letter of study (or answer a question about the book you read, an arithmetic problem, etc.). Provide think time for students and then ask each student to provide a word. Remind each student to leave the carpet and go back to his or her desk when they provide a word that starts with the appropriate letter. This activity can be adapted for use as students line up to go to recess, are dismissed at the end of the day, or are leaving for their next class.</p>

Graphic Organizers

Why should I use graphic organizers?

- Provide an active way for students to process information.
- Visually represent different types of connections between various pieces of information or ideas.
- They combine words and phrases with symbols to communicate those connections and to effectively engage students in learning – including supporting different student learning styles.

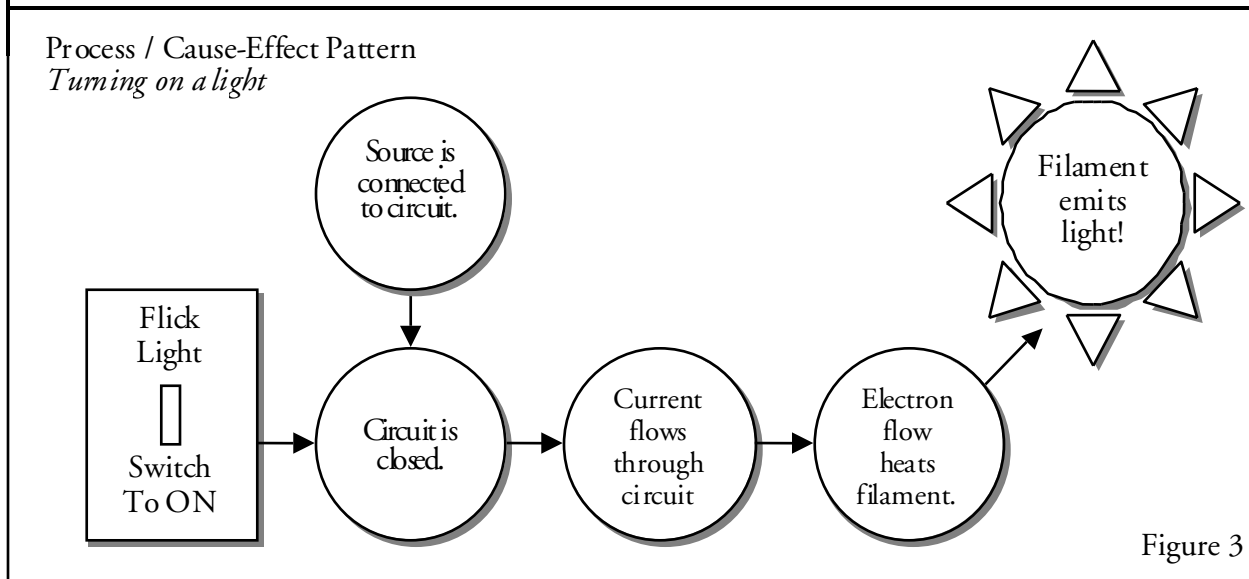
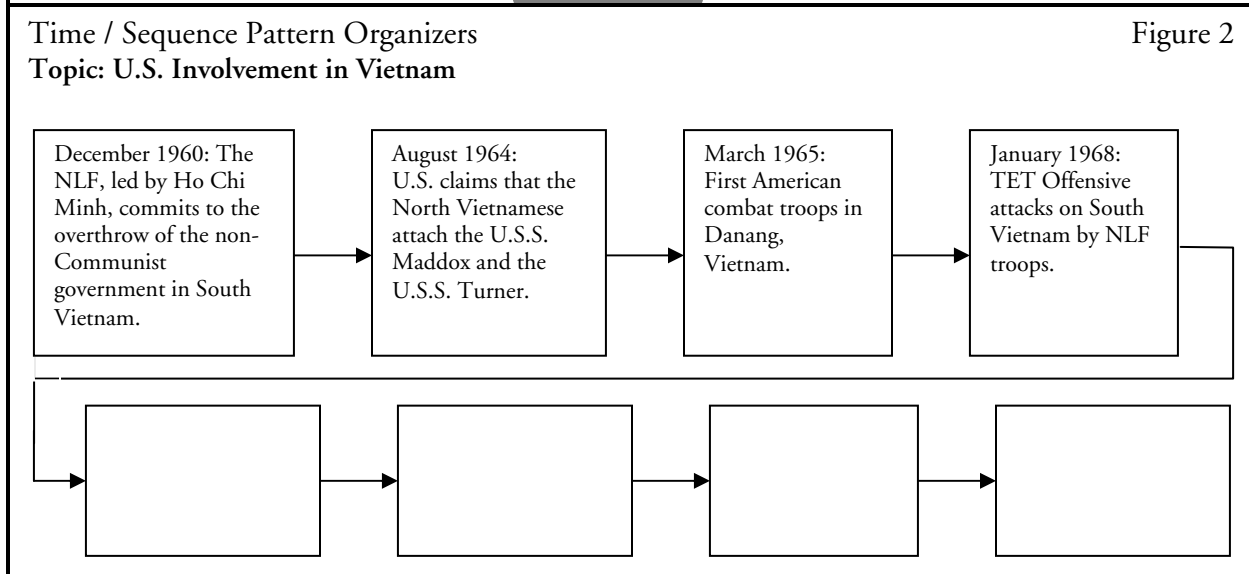
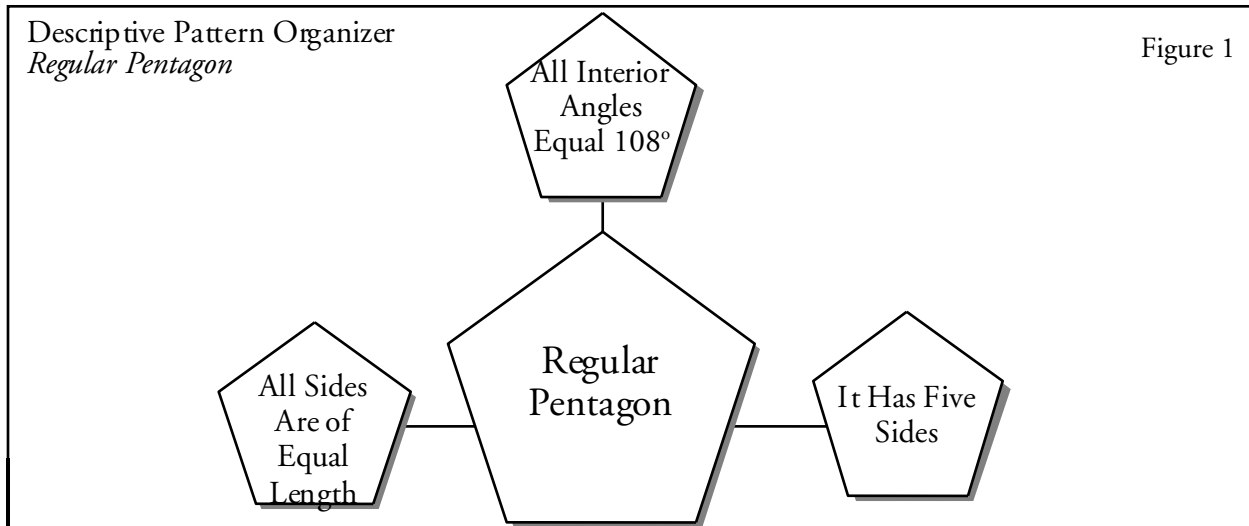
When should I use graphic organizers?

- When introducing new concepts or starting a unit.
- When you are lecturing and having students take notes.
- When reflecting on and organizing learning from a lesson or unit.

How should I use graphic organizers?

1. There are a variety of different ways to use graphic organizers. You can distribute a complete organizer to students to support understanding of material, you can create blank organizers and distribute to students to complete with or without your guidance, or you can have students create their own organizers.
2. Some of the different types of organizers are shown on the next page.

Organizer Type	Description
Descriptive Organizers	Descriptive organizers can be used to define the characteristics, facts, or terms related to a specific person, place, thing, or event (see Figure 1).
Time / Sequence Organizers	Time/sequence organizers list specific events in chronological order (see Figure 2).
Cause-Effect Organizers	Cause-effect organizers illustrate the events starting from an action leading to a specific outcome (see Figure 3).
Generalization Organizers	Generalization organizers illustrate the supporting examples of a general statement (see Figure 4).
Concept Organizers	Concept organizers illustrate the general characteristics of a concept, with those characteristics then divided into smaller classifications or examples (see Figure 5).
Comparison / Contrast Organizers	Comparison/Contrast organizers (also called Venn Diagrams) organize information about two or more topics according to their similarities and differences (see Figure 6).



Generalization / Principle Pattern Organizer

Figure 4

Adjectives

Adjective:

An adjective describes other objects.

I don't like to drink **cold** water.

I enjoy living in Houston because of the **enjoyable** weather.

The **basketball** shoes had no laces.

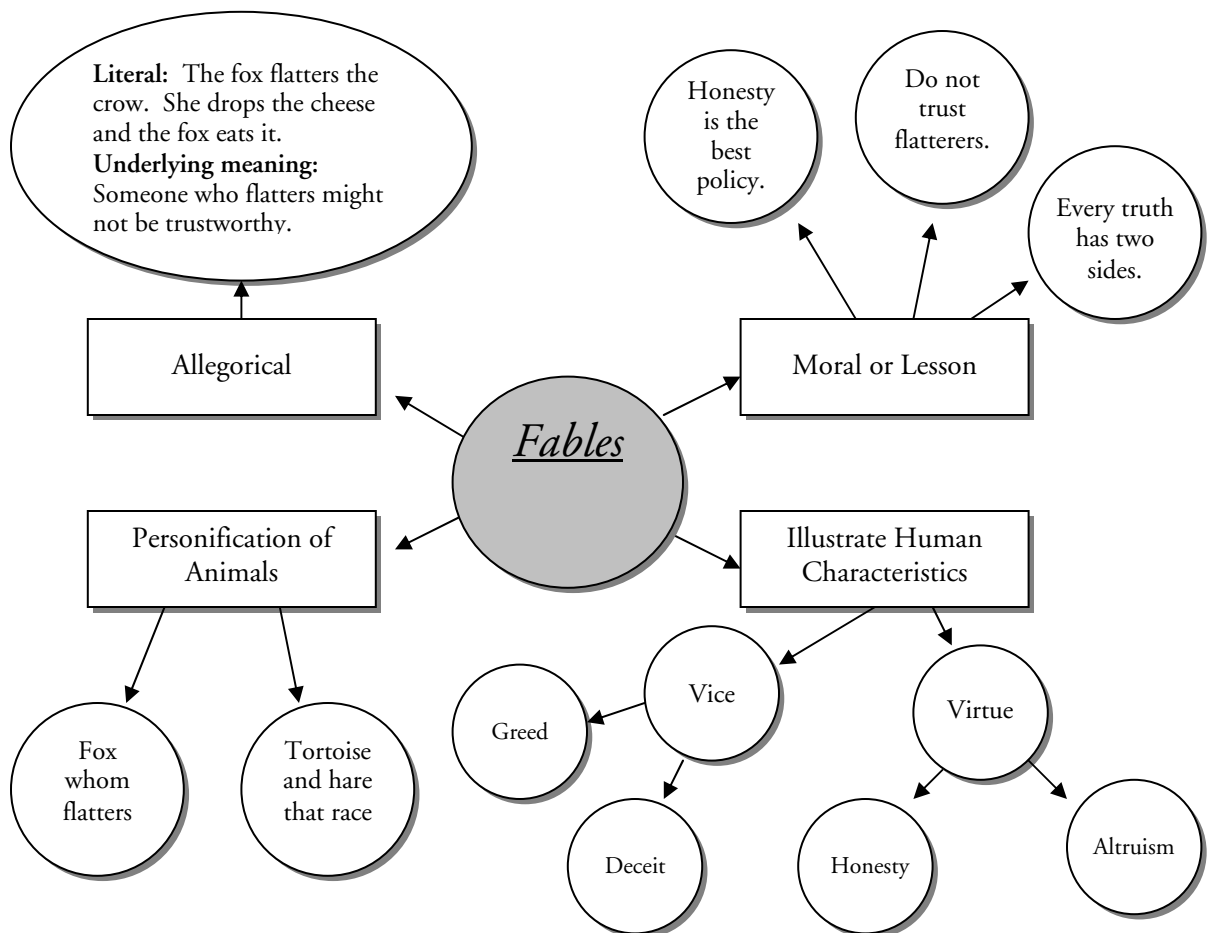
The **worn** compact disc skipped constantly.

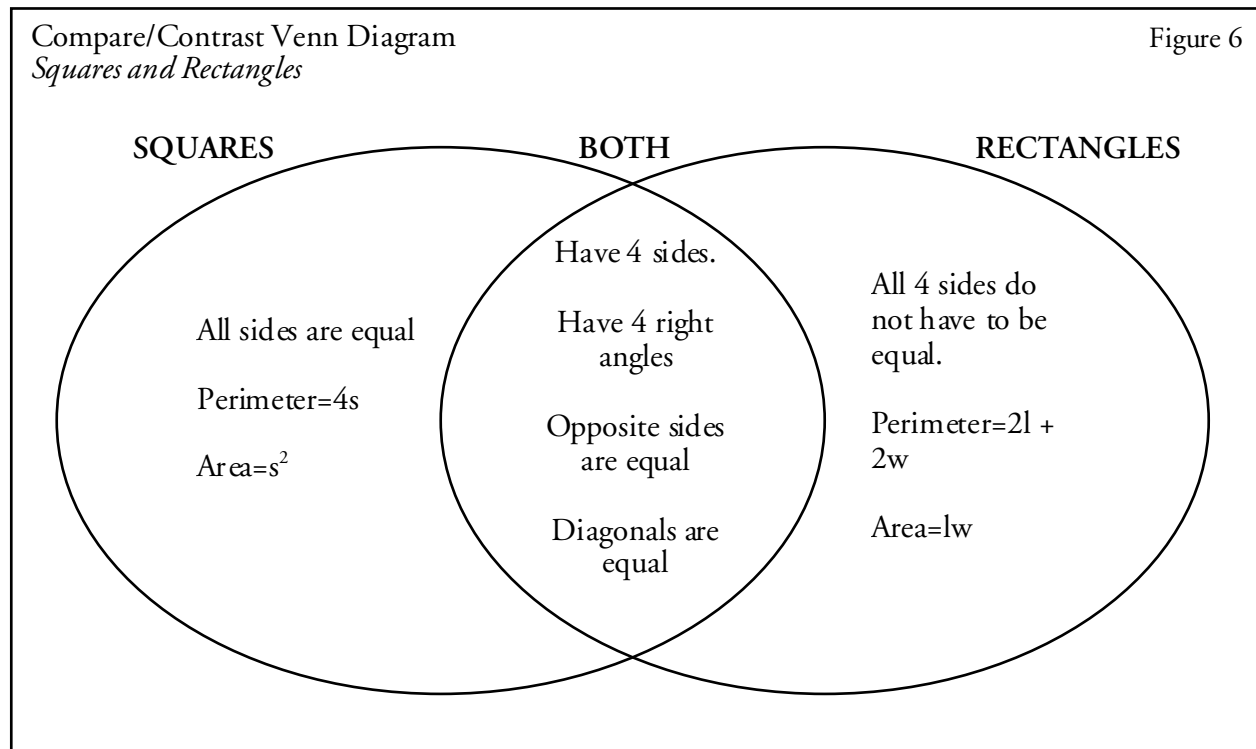
The iron left a **rusty** stain on my **new** shirt.

Concept Pattern Organizer

Figure 5

Fables





Analogies

Why should I use analogies?

- Helps students make connections between familiar and unfamiliar concepts.
- Encourages conceptual understanding of abstract ideas.
- Encourages complex higher-order thinking (there are multiple analogies for any one concept)
- Serves as a good check for understanding and an alternative assessment tool, as analogies can be far more revealing than traditional tests in assessing students' understanding of complex ideas.

When should I use analogies?

- At the beginning of a lesson or unit to pre-assess student understanding.
- During the heart of a lesson to reinforce and communicate abstract ideas.
- At the end of a lesson or unit to assess students' comprehension.

How do I use analogies?

1. **Present the concept to be learned:** "Today we are going to explore cell structures and their functions."
2. **Introduce the concept and purpose of an analogy and present an example analogy:** "An analogy is a means of comparison to help us learn and understand new information. For example, the major highways of a city are like the major arteries of the body---most people travel along these highways just like most of the blood in our bodies travels in the main arteries."
3. **Identify features of the original concept that will be related to the analogy, and identify the similarities between the two.** Using a graphic organizer or table, introduce and list the important features of the cell (1st column) and the role those features play (2nd column). You might also draw or show an accompanying visual representation of the cell with labeled parts. Tell students that the structures in a cell are analogous to certain features in a city, and either present or discuss those parallels (column 3).

Features of a cell	Function or role	Corresponding features of a city
Cell wall and/or membrane	Outer structure	Physical boundaries—rivers, lakes, hills, city boundary roads, gates, fences
Cytoplasm	Inner Part	Air
Nucleus	Control center	City Hall, Mayor's office
Endoplasmic reticulum	Communication	Phone and cable lines, newspaper
Mitochondria	Energy	Power plant or utilities company
Vacuole	Waste Removal	Garbage and recycling trucks, landfills and recycling plants
Golgi apparatus	Enzyme production	Citizens

4. **Identify differences, indicating where the analogy may break down.** "In what ways does the nucleus play the same role as City Hall? Are there features that don't really match?"
5. **Draw conclusions and/or encourage student generation of additional analogies.** "Now everyone is going to spend a few minutes developing your own analogy for a cell. Describe how your analogy works and where it breaks down."

Brainstorming

Why should my students brainstorm?

- Involves a large number of students in a non-threatening and stimulating process.
- Taps student interest and prior knowledge.
- Helps students generate ideas or solve problems creatively.

When should students brainstorm?

- **At the start of a new unit or topic of study to tap into student prior knowledge.** Before Mr. Kearney began his social studies unit on mythology, he asked his students to brainstorm answers to the following prompt: "What is a myth?"
- **At the start of a new unit or lesson to develop student interest.** Before beginning the unit focused upon space, Mr. Stauffer asked his students to brainstorm everything that they wanted to know about space. He recorded their interests and posted them in class.
- **To reflect on a lesson or unit.** After completing their unit on *The Catcher in the Rye*, Ms. Beard asked her students to brainstorm their interpretation of the relationship between the title and the story.

How should students brainstorm?

1. **Focus the Topic.** "Over the next few weeks we will be learning about Native Americans. Today we will discuss the different tribes within the United States."
2. **Explain the Activity.** "We are going to spend about three minutes brainstorming a list of tribes that we believe lived in what we now refer to as the United States."
3. **Set the Expectations.** "I want to hear many ideas from as many people as possible. If you feel that you have a lot to contribute to this storm, be patient and let others make their first contributions before you make your second. As you think of answers I will record them on the board – all ideas will be accepted and recorded. Don't worry about accuracy. Chris..."

What are the challenges to Brainstorming?

Students who process information quickly can often dominate brainstorming. An effective process for involving all students in brainstorming is to:

1. **Give students a minute to record their responses on a piece of scratch paper.** "I want you to take one minute to write down everything that you already know about the Supreme Court. After the minute, we will share our responses."
2. **Circulate to ensure that everyone has a response.** Survey the responses of different students. If you know that certain students need more process time, check to see if they have recorded any responses.
3. **Strategically elicit responses.** First call on students who worked hard to develop a smaller number of answers, thereby ensuring that they have something to contribute. Your students who think of twenty items in one minute will be able to contribute later.

KLW Charts

Why should I use KWL charts?

- Activates student prior knowledge at the beginning of a new unit or lesson
- Involves each student in classroom discussion and reflection
- Catalogs specific learning goals, providing direction for future work
- Provides a structured opportunity for reflection – a key component of this strategy – at the end of a lesson or unit. By reflecting on what has been learned, students can identify actual progress and will see that their interests have been validated.

When should I use KWL charts?

- Before and after a lesson or unit.

How should I use KWL charts?

1. **Provide each student with his or her own KWL chart.** If you are teaching older students, you can ask each student to draw a three column chart on his or her paper, and label the columns What I Know, What I am Wondering, and What I Learned.
2. **Introduce students to the new subject matter.** “We will spend the next few weeks understanding and experiencing poetry. Before we begin, I would like to determine what you already know about poetry. So, using your KWL, fill in the first column titled ‘What I know’ with things that you already know about poetry.”
3. **Allow time for all students to make entries.** Circulate about the classroom to monitor each student’s progress, stopping to support students who appear to be struggling.
4. **Record their responses on a large KWL chart.** After students have completed the first column, ask students to share their entries while recording their responses on the classroom chart. Tell them if another student reminds them of something they know about poetry, they can add that fact to their own “K” column.
5. **Introduce the ‘What I am Wondering’ column.** “You already seem to know quite a bit about poetry. I want to also determine what you *want* to learn about poetry. Fill in the ‘What I am Wondering’ column with your questions and interests.”
6. **Allow time for all students to make entries.** Circulate about the classroom to monitor each student’s progress – stopping to support students who appear to be struggling.
7. **Record their responses on the large KWL chart.** After students have completed the first column, begin to select students to share their entries while recording their responses on a classroom chart.
8. **At the end of the lesson, discuss what has been learned that day and fill in the chart.** Continue to reflect and fill the chart until the poetry work has been completed.

Example:

What I Know	What I am Wondering	What I Learned
Some poems rhyme. Poetry is like rapping. Poems are usually short in length.	What makes poetry different from other types of writing? What is a haiku?	The pattern and movement of sound separates poetry from other types of writing. A haiku is a form of Japanese poetry that has 5 syllables in the first and third lines and 7 syllables in the second line.

Bloom's Taxonomy and How to Write Higher and Lower Order Questions

This chart provides a basic guide to crafting questions at the various levels of Bloom's Taxonomy. Thoughtfully crafting your questions – both oral and written – will support your lesson objectives and challenge your students to think at higher cognitive levels.

Cognitive Level	Useful Verbs	Sample Question Stems
Knowledge Recognizing and recalling information. (E.g., when shown an exclamation point, a student will identify it by name.)	tell list describe relate locate write find state name	What is . . . ? How is . . . ? Where is . . . ? When did...happen? How did...happen? When did . . . ? Can you recall . . . ? How would you show . . . ? Can you select . . . ? Who were the main . . . ? Can you list three . . . ? Which one . . . ? Who was . . . ?
Comprehension Understanding the meaning of information. (E.g., the student can describe the use of an exclamation point.)	explain interpret outline discuss distinguish predict restate translate compare describe classify	How would you classify the type of . . . ? How would you compare . . . ? contrast . . . ? Will you state or interpret in your own words . . . ? How would you rephrase the meaning . . . ? What facts or ideas show . . . ? What is the main idea of . . . ? Which statements support . . . ? Can you explain what is happening . . . ? Why did...? What can you say about . . . ? Which is the best answer . . . ? How would you summarize . . . ?
Application Using information. (E.g., the student can use an exclamation point in a sentence.)	solve show use illustrate calculate construct complete examine classify	How would you use . . . ? What examples can you find to . . . ? How would you solve...using what you have learned ? How would you organize...to show . . . ? How would you show your understanding of . . . ? How would you apply what you learned to develop . . . ? What other way would you plan to . . . ? What would result if . . . ? What facts would you select to show . . . ?
Analysis Dissecting information into its component parts to see their relationships. (E.g., the student can identify an exclamation point's misuse in a paragraph.)	analyze distinguish examine compare contrast investigate categorize identify explain separate advertise	What are the parts or features of . . . ? How is...related to . . . ? Why do you think . . . ? What is the theme . . . ? Can you list the parts . . . ? What inference can you make . . . ? What conclusions can you draw . . . ? How would you classify . . . ? How is the function of . . . ? What evidence can you find . . . ? What is the relationship between . . . ?

Synthesis Putting components together to form new ideas. (E.g., the student can use exclamation points, questions marks, and periods appropriately in a piece of writing.)	create invent compose predict plan construct design imagine improve propose devise formulate elaborate estimate	What changes would you make to solve . . . ? How would you improve . . . ? What would happen if . . . ? Can you elaborate on the reason . . . ? Can you propose an alternative . . . ? Can you invent . . . ? How could you change (modify) the plot (plan) . . . ? What could be done to minimize (maximize) . . . ? What could be combined to improve (change) . . . ? Suppose you could...what would you do . . . ? How would you test . . . ? Can you formulate a theory for . . . ? Can you predict the outcome if . . . ? How would you estimate the results for . . . ? Can you construct a model that would change . . . ?
Evaluation Judging the worth of an idea. (E.g., the student can evaluate the effective use of exclamation points in creating the mood in a descriptive passage.)	judge select choose decide justify debate verify argue recommend discuss determine prioritize access	Do you agree with the actions . . . ? How would you prove . . . ? disprove . . . ? Can you assess the value or importance of . . . ? Would it be better if . . . ? Why did they (the character) choose . . . ? What would you recommend . . . ? How would you rate the . . . ? What would you cite to defend the actions . . . ? How would you evaluate . . . ? How could you determine . . . ? What choice would you have made . . . ? How would you prioritize . . . ? What judgment would you make about . . . ? What information would you use to support the view ... ? How would you justify . . . ?

Guidelines for Group Work

- 1. Everyone works and contributes in the group; make sure each person has a job.
- 2. Make sure everyone has a turn to speak.
- 3. Listen carefully to one another.
- 4. Speak softly – with six-inch voices.
- 5. Use each other’s names and encouraging words very often.
- 6. Stay concentrated on the task, and keep the topic to what we are learning.
- 7. Signal that your group has a question by having all group members raise their hands.
- 8. When the teacher says “1-2-3, all eyes on me,” students stop what they are doing and say, “1-2, all eyes on you.”

When your group has finished, answer the following questions:

1. Did everyone get a chance to speak? Why or why not?

2. What did you do to make sure everyone was involved with the assignment?

3. On a scale of 1-4, how well did the group perform? Why did you choose that score?

4. On a scale of 1-4, how well did you perform? Why did you choose that score?

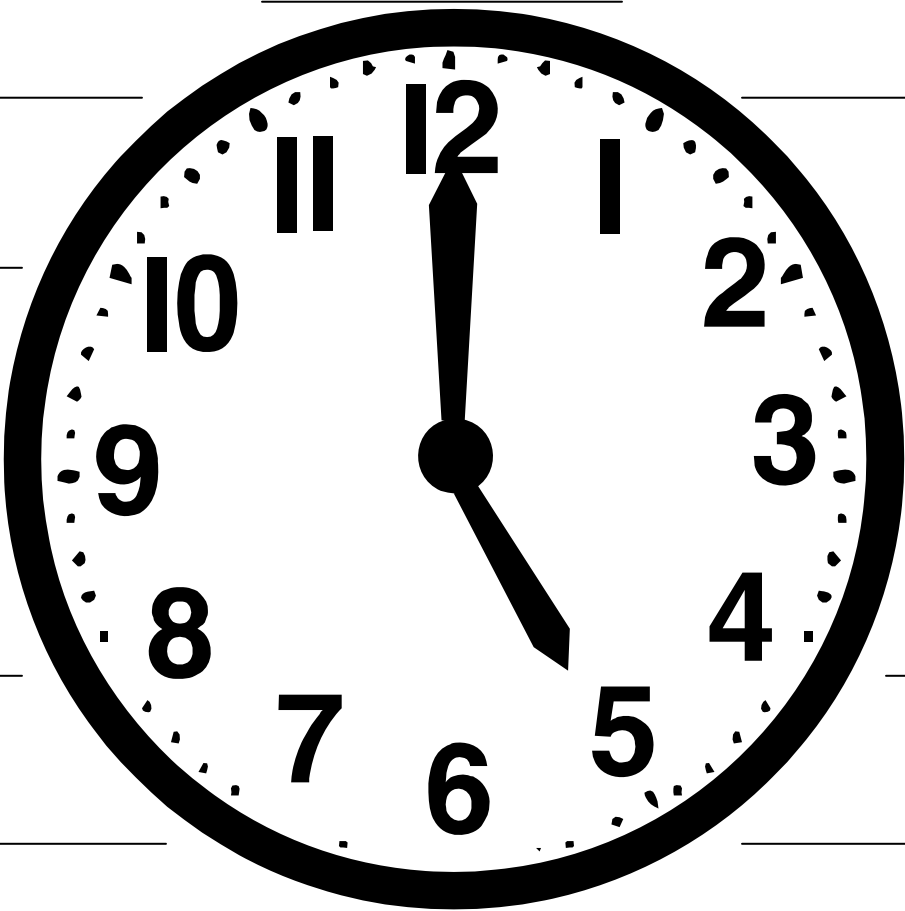
5. Did you do better as an individual or as part of a group? Why?

6. Which rule was the hardest to follow? How could your group improve for next time?

Around the Clock Partners

“Around the Clock Partners” allows you to put students into pairs in an efficient manner.

- Before putting students in pairs for the first time – even several days before, perhaps while you’re teaching procedures for pair/group work – give each student a copy of the clock on the next page. You might want to copy it onto another piece of paper that has your directions and proper heading on it.
- Instruct students to make “appointments” with a classmate for each hour (if possible, students should not make an appointment with the same classmate twice). If another classmate has the same hour free, they should write that classmates’ name on the line for that hour.
- For example, if Kelly and Zach both have 1:00 free, they are “1 o’clock partners”. Kelly should write “Zach” on the 1:00 line on her clock at 1:00 and Zack should write “Kelly” on the 1:00 line on his clock.
- Later, when the teacher instructs everyone to work with their 1:00 partner, Kelly and Zach can look at their clock and know that they are supposed to work together.
- A few cautionary notes:
 - Try to set up clock partners on a day when every student is there!!! If one or two students are missing, you might want to carry their clock around and make their appointments for them.
 - If you have an even number of absent students when you want to put students in clock partners, you should quickly place students missing their clock partner in pairs with each other (if you have an odd number of absent students, you will need to make a group of three or work with a student yourself).
 - Tell students that they will need to keep their clock for the entire year. Depending on the age of the students, you might want to keep the clocks for them, and pass them out on days when students will work with a clock partner. If students are old enough, they could keep their clocks in their binder for your class, for example.



Think – Pair – Share

Why should I use Think-Pair-Share?

Think-Pair-Share is an instructional strategy that supports student thinking through collaboration. It is an excellent introduction to collaboration because:

- Student roles are clearly defined
- It has a minimal duration
- It is applicable to varied situations

When should I use Think-Pair-Share?

Think-Pair-Share can be used at all point in the lesson.

How should I use a Think-Pair-Share?

Below is an example of a primary grade teacher who is having students compare different parts of speech to assess their current level of understanding.

- **Give students an instructional prompt:** “On your paper, please write down one verb and one noun. It doesn’t matter what noun and verb you choose. Now use a Venn Diagram to compare the similarities and differences between verbs and nouns.”
- **Let students think.** Instruct students to spend at least one minute working on their Venn Diagram alone.
- **Put students in pairs.** “Slide next to your partner.” (wait until partners are together). “For the next three minutes you and your partner are going to compare and discuss your Venn Diagrams. Did your partner include something in their diagram that you left out? Do you or your partner have a characteristic about nouns and verbs in your diagram that is incorrect?”
- **Allow students to share.** “I am going to record your answers on the Venn Diagram on the board. What similarities did you find....Miguel?”

What are common challenges in implementing Think-Pair-Share?

The biggest challenge with any type of collaborative learning is providing clear expectations to students. To increase the effectiveness of Think-Pair-Share as an instructional strategy, you should:

1. Model your expectations for each stage of the Think-Pair-Share process before ever using it.
2. Clearly assign pairs before beginning the activity.
3. Set and enforce specific time periods for each task.

Differentiated Strategies Glossary

Alternate assessments – After learning experiences are completed using the same content or process, the student may have a choice of products to show what has been learned. This differentiation creates possibilities for students who excel in different modalities over others (verbal versus visual).

Anchor options – Students are expected to understand and know how to complete such activities with no teacher participation so that teachers can work with small groups or individuals. Teachers often spend time early in the school year describing such activities for independence throughout the year. An example of an anchor activity would be using a geoboard and following directions on an activity card.

Choice boards – Work assignments are written on cards that are placed in hanging pockets. By asking students to select a card from a particular row of pockets, the teacher targets work toward student needs yet allows student choice.

Choice of books – Different textbooks or novels (often at different levels) used for content study or for literature circles.

Compacting – This strategy begins with a student assessment to determine level of knowledge or skill already attained (i.e. pretest). Students who demonstrate proficiency before the unit even begins work at a higher level in flexible groups.

Entry points – Introducing students to a topic through different avenues, which might be narratives, quantitative or logical problems, aesthetic (sensory) experiences, or experiential (hands-on) activities.

Explorations by interest – Based on individual interests, students can do research to find out more about a particular area/idea.

Flexible grouping – Students are put in groups that do not remain the same and the composition of the group is determined by interest, skills, learning style, compacting.

Flexible seating – Students are seated in arrangements that fit the specific teaching plan and do not remain in the same arrangement throughout the year.

4MAT – Teachers plan instruction for each of four learning preferences over the course of several days on a given topic. Some lessons focus on mastery, some on understanding, some on personal involvement, and some on synthesis. Each learner has a chance to approach the topic through preferred modes and to strengthen weaker areas.

Games to practice mastery of information and skills – Use games as a way to review and reinforce concepts. Include questions and tasks that are on a variety of cognitive levels.

Graphic organizers – A visual representation of organizing thinking and ideas such as a Venn diagram or a word web. Useful for all students and particularly for those who organize visually.

Group investigation – Students are grouped in pairs or small working groups to develop a plan to solve a problem presented by the teacher. Often the plan is completed by the same group and a response about the process is expected.

Homework options – Students are provided with choices about the assignments they complete as homework.

Independent study or expert journal – Students chooses a topic of interest that s/he is curious and wants to discover new information. Research is done from questions developed by the student guided by the classroom teacher or differentiation teacher. The researcher produces a product to share learning with classmates.

Interest centers – Areas in a classroom set up with learning experiences directed to a specific interest such as wolves or prairie plants.

Interest groups – A learning group composed of those interested in a specific interest of learning.

Jigsaw – Individual students or groups of students are asked to study one component of learning (plants and animals of a biome) while other students or groups study another component (physical characteristics of a biome). Sharing information gathered puts the pieces together and the students are required to learn from each other. Jigsaw can also have students create different components of an end product.

Learning contracts – Negotiated agreement between teacher and student that gives students freedom in acquiring skills and understandings considered important by the teacher.

Lectures coupled with graphic organizers – The teacher provides students with organizers on which students can take notes or which they can use to follow along with a lecture.

Let's make a deal project – A product that includes standards and the option to alter one or more requirements with teacher approval of the “deal.”

Literature circles – Flexible grouping of students who engage in different studies of a piece of literature. Groups can be heterogeneous and homogeneous.

Mini workshop to re-teach or extend skills – A short, specific lesson with a student group who is focused on one area of interest or who needs review and repetition of a specific skill.

Multiple intelligences options – Students select activities or are assigned an activity that is designed for learning a specific area of content through their strong intelligence (verbal-linguistic, interpersonal, musical, etc.)

Multiple levels of questions – Teachers can use the level of thinking and the verbs that match those levels to advance the thinking of student response.

Options for varied modes of expression – Allow students to express or present the information they have learned in a variety of ways.

Orbitals – Independent investigations generally lasting 3-6 weeks. The investigations “orbit” or revolve around some facet of the curriculum.

Personal agendas – A personal to-do list of tasks the teacher wants each student to accomplish in a given day/lesson/unit. Student agendas within a classroom may vary.

Instructional Planning & Delivery

Stations – Areas in a classroom set up with learning experiences that are steps in a progression of learning an area of content or a skill. Beginning and ending points for students can vary for differentiation.

Student-Teacher goal setting – The teacher and student work together to develop individual learning goals for the student.

Tape-recorded materials – Instructions and general information are put on a cassette tap that students can play and replay.

Think-pair-share – Students are working in pairs, asked to think about a question for a specific amount of time, then asked to share their answers with each other.

Think-Tac-Toe – A choice board for students to complete learning experiences.

Tiered lesson/assignment/product/center – The content and objective are the same but the process and/or the products are varied according to level of skill attained.

Varying organizers – Use organizers that have varied levels of complexity.

Varying scaffolding on the same organizer – Provide graphic organizers that require students to complete various amounts of information. Some will be more filled out (by the teacher) than others.

Varied supplementary activities – Provide a variety of extra activities for students to use to supplement the main lesson.

OAKLAND UNIFIED SCHOOL DISTRICT
INDIVIDUALIZED EDUCATION PROGRAM
Student Information Page

Page 1 of _____

Student _____ Date of Meeting _____
 Birthdate _____ C.A. _____ Grade _____ IEP Review Date _____
 Student's Address _____ Zip _____
 Phone (Home) _____ (Work) _____ (Other) _____
 Parent / Guardian Name: _____
 Parent / Guardian Code _____ 1=Parent 2=Guardian 3=Foster 4=Surrogate
 Parent Address: _____ Zip _____
 Student's Primary Language _____ Parent's Primary Language _____
 English Language Learner Program ☐ Bilingual ☐ Sheltered ☐ SDAIE
 School of Placement _____ Neighborhood School _____

Ethnic Origin May select up to six ethnic identifications from list below:

Native American	Vietnamese	Other Asian	White	Hispanic
Chinese	Asian Indian	Hawaiian	Tahitian	African - American
Japanese	Laotian	Guamanian	Other Pacific Islander	
Korean	Cambodian	Samoan	Filipino	

1. _____ 2. _____ 3. _____
 4. _____ 5. _____ 6. _____

PEC Transportation: ☐ AC ☐ Special Bus ☐ Reimburse Parent ☐ None

TYPE OF MEETING

☐ Initial ☐ Requested by _____
☐ Annual Review ☐ Addendum to IEP dated _____
☐ Triennial ☐ 30 Day Transfer
☐ Individual Transition Plan

Date of IEP for last complete evaluation _____

Copy Distribution: Special Education Office; Parent; Special Education Teacher; DIS Specialists, General Education Teacher
 [cum folder] PEC 8.01A

INDIVIDUALIZED EDUCATION PROGRAM

STUDENT _____ DATE _____ Page _____ of _____

Present levels of performance: Areas Assessed and Needs Identified (Check as appropriate)

1. <input type="checkbox"/> Health and Medical	6. <input type="checkbox"/> Cognitive	11. <input type="checkbox"/> Prevocational/Vocational
2. <input type="checkbox"/> Pre-academic/Academic	7. <input type="checkbox"/> Visual/Auditory Processing	12. <input type="checkbox"/> Gross Motor/Fine Motor
3. <input type="checkbox"/> Social/Emotional	8. <input type="checkbox"/> General Education Classroom	13. <input type="checkbox"/> Transition
4. <input type="checkbox"/> Speech and Language	9. <input type="checkbox"/> Daily Living Skills	14. <input type="checkbox"/> Leisure Recreation
5. <input type="checkbox"/> Self-help/ Domestic	10. <input type="checkbox"/> Community	15. <input type="checkbox"/> Behavioral Observation
		16. <input type="checkbox"/> Other _____

• All IEPs must include a statement of the relationship of behavior to the student's academic functioning.

COPY DISTRIBUTION: Special Education Office; Parent; Special Education Teacher; DIS Specialist, General Education Teacher [cum folder]
 PEC 7.01 B

IDENTIFICATION OF A SPECIFIC LEARNING DISABILITY

(not to be used for any other disability)

Basis for making determination of eligibility:

The student was assessed by a multidisciplinary team using health/developmental information, psycho-educational tests, work samples, and observations of behavior and review of social, behavioral, and academic school performance.

Description of student's handicapping condition:

California Code of Regulations (30330) requires a discrepancy of 1.5 standard deviations between ability and achievement in order for a child to be eligible for Special Education programs as a learning disabled student.

☐ A. This student has demonstrated a discrepancy of at least 1.5 standard deviations between intellectual ability and achievement in one or more of the following areas:

- ☐ Oral Expression
- ☐ Reading Comprehension
- ☐ Math Calculation
- ☐ Listening Comprehension
- ☐ Basic Reading Skills
- ☐ Math Reasoning
- ☐ Written Expression

This discrepancy is due to a disorder in one or more of the basic psychological processes, which includes:

- ☐ Attention
- ☐ Association
- ☐ Visual Processing
- ☐ Conceptualization
- ☐ Auditory Processing
- ☐ Expression
- ☐ Sensory Motor Skills

☐ B. The IEP team utilized the following information to determine that a severe discrepancy does exist. (Additional documentation such as work samples and group test results are required to support this determination.)

Excursion statements:

- ☐ Yes ☐ No Does the data indicate the student's specific learning disability is the result of a visual, hearing and/or motor disability, mental retardation, or serious emotional disturbance?
- ☐ Yes ☐ No Does the data indicate the student's specific learning disability is the result of economic or environmental disadvantage (including limited school experience / poor attendance)?
- ☐ Yes ☐ No Does the data indicate that the discrepancy can be corrected through other categorical services offered within the regular instructional program?

The IEP team has determined that this student ☐ is eligible ☐ is not eligible for special education services under the disability of Specific Learning Disability.

COPY DISTRIBUTION: WHITE - Special Education Office GREEN - Parent YELLOW - Special Education Teacher PINK - DIS Specialist COLLETT - General Education Teacher (from folder)

Page 8.01 C-E

This student is ☐ eligible for Special Education. The primary disability is [circle just one below]. The basis for this determination is:

- AU - AUTISM
- MR - MENTALLY RETARDED
- LD - LANGUAGE/SPEECH DISORDER
- DB - DEAF BLIND
- OH - OTHER HEALTH IMPAIRED
- TBI - TRAUMATIC BRAIN INJURY
- D - DEAF
- OI - ORTHOPEDICALLY IMPAIRED
- VI - VISUALLY IMPAIRED
- HOH - HARD OF HEARING
- ED - EMOTIONALLY DISTURBED
- SLD - SPECIFIC LEARNING DISABILITY
- MD - MULTIDISABILITIES
- EMC - Established Medical Condition [0-5 ONLY]

PROGRAM AND/OR SERVICES (Just for Special Education)	Implementation Date (Actual Date)	% OUT of General Education Class	COMMENTS State when and why the student will not attend a general education class or activity.
<input type="checkbox"/> General Classroom With Accommodations			
<input type="checkbox"/> Resource Specialist Services (Push in services)			
<input type="checkbox"/> Resource Specialist Program (Pull out services)			
<input type="checkbox"/> Special Day Class Inclusion			
<input type="checkbox"/> Special Day Class General School			
<input type="checkbox"/> Nonpublic School			
<input type="checkbox"/> Extended School Year (This is not summer school).			
<input type="checkbox"/> Designated Instruction Service Duration/Frequency			Location of Service [In/out of General Education]
<input type="checkbox"/> County Mental Health (3632)			
<input type="checkbox"/> California Children's Services (CCS)			

Copy Distribution: Special Education Office; Parent; Special Education Teacher, DIS Specialist; General Education Teacher [from folder]; PEC 8.01 C-E

STUDENT _____ DATE _____ Page _____ of _____

Annual Goal: _____

Programs for Exceptional Children
Accommodations for Classroom Instruction and Testing Situations

Student Name _____ Date _____

The student will take:

- ___ STAR with no accommodations
- ___ STAR with standard accommodations
- ___ STAR with non-standard accommodations
- ___ Alternate Assessment for Severely Disabled Students, based upon different curriculum content.

A. Alternate Modes (Change in method by which student responds, when needed)

Standard

1. Allow student to respond in Braille.
2. Allow use of sign language responses.
3. Allow student to use calculator.
4. Allow student to use a large marking pen, a larger size or specially designed writing tool.

Non Standard

1. Allow oral responses.
2. Allow student to dictate responses.
3. Allow student to indicate answers by pointing.
4. Allow student to tape record responses.
5. Allow student to use a typewriter or word processor.
6. Allow use of math manipulative (counters, abacus, rods, finger math, etc.)
7. Allow use of tables or charts.
8. Allow student to write answers on chalkboard.
9. Allow student to demonstrate skills with classroom materials.
10. Other: _____

B. Accommodations (Change in method of presentation of any curriculum or test)

Standard

1. Provide instruction and/or Administer tests in small groups or individually.
2. Allow more time per item.
3. Increase number of sessions with shorter duration.
4. Reduce the number of items on a page.
5. Utilize "total communication" in providing instructions. (Signing and oral instructions.)
6. Provide materials/tests in Braille, large print or utilize magnification equipment.

Non Standard

1. Read directions aloud.
2. Read problems aloud except on tests measuring reading skills.
3. Assist with difficult words not meanings, except when assessing reading skills.
4. Allow student to listen to a tape-recorded version of the test or test.
5. Rephrase questions using fewer words or less complex language.
6. Use multiple-choice responses instead of sentence completion or essays.
7. Write examples on chalkboard, wall chart or paper; provide chart of high frequency words.
8. Allow for more space on page for math problems or utilize graph paper.
9. Set up simple outline for written essays.
10. Other: _____

Distribution: District File; Parent; General Education teacher (Cum Folder); Special Education Site File **PEC 8.01 D**

Baseline: _____

1.1 Enables student to participate in general curriculum and/or 1.1 Addresses other educational needs resulting from the disability

Review Comments: _____

Objective/Benchmark: _____

Person(s) Responsible: _____

Objective/Benchmark: _____

Person(s) Responsible: _____

Objective/Benchmark: _____

Person(s) Responsible: _____

Annual Goal: _____

Baseline: _____

1.1 Enables student to participate in general curriculum and/or 1.1 Addresses other educational needs resulting from the disability

Review Comments: _____

Objective/Benchmark: _____

Person(s) Responsible: _____

Objective/Benchmark: _____

Person(s) Responsible: _____

Objective/Benchmark: _____

Person(s) Responsible: _____

Objective/Benchmark: _____

Person(s) Responsible: _____

Annual Goal: _____

INDIVIDUALIZED EDUCATION PROGRAM

STUDENT _____ DATE _____

DIPLOMA CANDIDATE? [Applies only to students in high school]

- ☐ This student will meet Board-adopted standards for a high school diploma.
☐ This student will graduate with a regular high school diploma during this IEP and thus will no longer be eligible for special education services from the school district.

OR

- ☐ This student will meet IEP-developed standards, leading to a certificate of completion. The IEP standards are identified on IEP pages _____.
☐ Not applicable.

PLACEMENT AND SERVICES AGREEMENT [CAC Title V - 31.5(b) (9)]:

The individual education program is a statement of the services to be delivered and of anticipated goals and objectives for the pupil, but is not a contract which guarantees the accomplishment of the anticipated goals and objectives.

INFORMED CONSENT

- ☐ The statement of parent rights has been reviewed with me.
☐ I am aware that special education records will be destroyed three years after their usefulness ceases or in the student's 25th birth year, whichever is sooner. I may request access to these records prior to destruction.
☐ I agree with the individualized education program and placement recommendation.
☐ I only agree with the implementation of those parts of the IEP: _____

- ☐ For students reaching 17 years, the law requires that they be notified of these rights which will transfer to them on their 18th birthday.
☐ I have been made aware of my rights, under Special Education law, upon my 18th birthday.

Date: _____

Parent/Guardian Signature: _____
 (Student Signature)

IEP Team Members

TITLE	PRINT NAME	SIGNATURE
CHAIR, Administrative Designee		
School Administrator		
General Education Teacher		
Others, when appropriate:		
Psychologist		
Nurse		
Speech Therapist		
Student		

Copy Distribution: White - Special Education Office Green - Parent Yellow - Special Ed. Teacher Pink - OS Specialists Redlined - General Education Teacher (sum school) PGC 8.01 E (9/01)

INDIVIDUALIZED EDUCATION PROGRAM

STUDENT _____ DATE _____

TYPE OF PHYSICAL EDUCATION PROGRAM

- ☐ Regular ☐ Modified ☐ Adapted ☐ None

LOW INCIDENCE

- ☐ This student has a low incidence disability. The disability is: _____
☐ This student does require assistive technology equipment and/or services in order to meet goals and objectives and to access the core curriculum. The equipment is _____

ASSISTIVE NEEDS

- ☐ Pupil does not ☐ Pupil does require assistive technology equipment and/or services in order to meet goals and objectives and to access the core curriculum per the specialized assessment. Refer to IEP page _____ for assessment results.

THE IEP TEAM HAS DETERMINED THAT:

- ☐ The student is capable of following the school's student code of conduct without modifications. [No significant behavior problems.]
☐ The student needs a Behavior Management Plan to modify behavior(s). See IEP page _____.

THE IEP TEAM HAS DETERMINED THAT:

- ☐ The student's individual needs can be met at their home school.
☐ The student's individual needs cannot be met at their home school. Why: _____

PROVISIONS FOR TRANSITION SERVICES/PLAN

- ☐ Preschool/K to elementary school program ☐ SOC to RSP to general education
☐ School to career [See IEP, page _____] ☐ Other _____
☐ Continuing in current program

Who will do what by when?

_____ will transition to _____

To ensure a successful transition, the following steps will take place:

STEPS: _____ PERSON RESPONSIBLE: _____ TIMELINE: _____

SUPPORT SERVICES or Suggested Modifications for general education staff that will enable this student to progress and participate in general education curriculum activities such as assigned seating, peer tutor, reduction in quantity of homework; specific instructional strategies; curriculum program; in-class support by IA or Aide; co-teaching between general and special education teachers; workshop or learning center pass for specific areas of assistance; etc.:

Copy Distribution: White - Special Education Office Green - Parent Yellow - Special Ed. Teacher Pink - OS Specialists Redlined - General Education Teacher (sum school) PGC 8.01 E (9/01)

Sample IEP Goals

Behavior - Lack of Self-Control - Inappropriate Verbal/Physical Actions

John has been seen kicking, hitting, and pinching others. When angry or frustrated, he vocalizes very loudly and doesn't seem to know the appropriate words/signs to use to express his feelings. He is compliant with signed prompts to stop the behavior, not always needing direct comments.

- A. Annual Goal: John will exercise increased self-control, increasing appropriate verbal and physical behaviors with fading prompts/models.
- B. Short-Term Objectives:
 - 1. Given a class situation when John is evidencing inappropriate behavior, he will indicate, with modeling and/or prompts, his feelings (frustration, discomfort, fear), and a more appropriate behavior and language (i.e. "help me" or tap a student to get his attention and sign "please move" or "it's my turn" or indicate to teacher that he needs to regroup and organize himself), 80% of the time.
 - 2. Given a class situation when John is evidencing stress (before inappropriate behaviors begin), he will indicate, with modeling and/or prompts, appropriate interactions (i.e. "help me" or "I need more room" or "I need to move/a break") 80% of the time.
 - 3. Given a class situation, when John is evidencing stress, he will initiate appropriate interactions, without modeling, but with a prompt (i.e. "Are you ok?" or "What's the matter?" or "Raise your hand if you need help.") 80% of the time.
 - 4. Given a class situation, when John is evidencing stress, he will initiate appropriate interactions, without modeling or prompts 60% of the time.
 - 5. John will use a large motor activity prior to and during focused work 80% of the time.
 - 6. John will sit at an individual desk and work for 10 minutes 80% of the time.
 - 7. John will seek out his "chill out" space to regroup and organize himself with needed sensory input with modeling (i.e. "I need a break") 80% of the time.
 - 8. John will ask for his "chill out space" as needed with out modeling 80% of the time.

Behavior - Lack of Self Control - Flight Risk

John can remain in his assigned area with verbal prompts and close physical proximity of an adult. John has improved from fleeing from a small group. However, recently, John has had an episode of leaving the school campus. He has difficulty staying in an assigned area without prompts and direct supervision. In the classroom, he does not stay at the assigned area during work time without getting out of his seat and running. He needs continual prompts (about 10 - 15 in a 30 minute session) to do his work or sit correctly in his seat.

- A. Annual Goal: John will exercise increased self-control while at school, as evidenced by increasing lengths of time on task, and remaining in the assigned area, with fading prompts.
- B. Short-Term Objectives:
 - 1. Given a small group activity in the classroom, John will evidence increased self control and remain on task, using classroom modifications as indicated by his Sensory Integration OT, his Vision Therapist, and Dr Morganstein and with modeling of appropriate behaviors/language ("Raise your hand," "Help me," etc).
 - a. With ten or less prompts in 30 minutes
 - b. With six or less prompts in 30 minutes
 - c. With two or less prompts in 30 minutes
 - 2. Given an activity outside the classroom, John will evidence self-control by remaining in his assigned area on school grounds.
 - a. 100% of the time with prompts

Instructional Planning & Delivery

- b. 100% of the time with out prompts

Language - Reading Skills

John is able to use new vocabulary learned from stories. John is not able to read or follow survival-reading words with or without prompts. He is able to read 5/82 preprimary words in the Brigance Diagnostic Inventory. John is reading preprimer books with minimal assistance.

- A. Annual Goal: John will read preprimary and survival sight words.
- B. Short Term Objectives:
 - 1. Given preprimary sight words John will sign 50/82 with 80% accuracy.
 - 2. Given survival words, John will sign three words per week with 90% accuracy.
 - 3. John will correctly identify pictures using survival words as "dangerous" or with 80% accuracy.
 - 4. When shown pictures/words, John will sign/say six new vocabulary words, which are related to a lesson with 90% accuracy.
 - 5. Given six vocabulary words, John will match a picture/ & or sign to the correct word with 90% accuracy.
 - 6. John will use his finger to point to words as he reads/signs them with 90% accuracy using signed English and voice, as well as ASL concepts.
 - 7. John will complete a Reading Record, showing he has read books using the preprimary and survival sight words four out of five school days per week with 95% compliance.

Language - Spelling Skills

John can write all upper and lower case letters on request. He can copy words. He can spell one of three vocabulary words per story. He cannot spell two of three vocabulary words per story. John is unable to fingerspell a word on command.

- A. Annual Goal: John will spell (fingerspell and write) spelling words.
- B. Short Term Objectives:
 - 1. John will spell two out of five spelling words correctly each week on a written test with 90% accuracy.
 - 2. John will spell four out of five spelling words correctly each week on a written test with 80% accuracy.
 - 3. John will fingerspell two out of five spelling words correctly each week with 75% accuracy.
 - 4. John will choose a correctly spelled word from a field of two with 80% accuracy.
 - 5. John will choose a correctly spelled word from a field of three with 80% accuracy.
 - 6. John will do spelling/vocabulary homework for four out of five school days per week with 95% compliance.

Language - Reading Comprehension

John can recall new vocabulary learned from stories. He is not able to consistently identify the beginning, middle and end of a story using pictures. He is not able to consistently predict what happens next in a story using pictures.

- A. Annual Goal: John will show comprehension of literature.
- B. Short-Term Objectives:
 - 1. Given pictures, John will identify beginning, middle & end of the story with 90% accuracy.
 - 2. Given picture choices, John will predict what happens next in a story with 90% accuracy.
 - 3. John will read a sentence and choose the best word to complete that sentence from a field of two or three with 75% accuracy.

4. John will read a story. He will answer simple questions about the story by choosing the correct answer from a field of two or three, with 70% accuracy.
5. John will read a story. He will answer a simple question about the story by writing a simple sentence with 60% accuracy.
6. John will do reading comprehension homework weekly with 95% compliance.

Language - Expressive - Grammar

John can write all upper and lower case letters. He is able to copy single words and write some from memory. He is able to copy a sentence using the initial capitalization and ending punctuation. He is not consistent in selecting sentences with correct capitalization and punctuation. He does not use capitals for people's names.

- A. Annual Goal: John will use correct nouns, pronouns, capitalization and punctuation in a sentence.
- B. Short-Term Objectives:
 1. Given a choice of two sentences, John will choose the one with correct capitalization and punctuation with 80% accuracy.
 2. John will correct a sentence that is improperly written, with 80% accuracy.
 3. Given a choice of four proper nouns, John will choose the ones with the correct capitalization with 80% accuracy.
 4. Given a choice of two or three pronouns, John will choose the one that could be substituted for underlined proper nouns in a sentence, with 50% accuracy.
 5. John will complete homework assignments in grammar weekly with 95% compliance.

Language - Dictionary Skills

John can match pictures to words. He can copy words. He can sign the word. He cannot alphabetize words or look up definitions.

- A. Annual Goal: John will begin deciphering the structure of a word and attaching a meaning to it.
- B. Short-Term Goals:
 1. John will identify the initial letter/sound of a word (shown the word), from a field of four letters with 80% accuracy.
 2. John will alphabetize his spelling/vocabulary words with 80% accuracy.
 3. John will choose the beginning sound/letter that will form the word shown in a picture with 60% accuracy.
 4. John will match the meaning of a word, to that word with 60% accuracy.
 5. John will look up and copy the meaning of select vocabulary words with 80% accuracy.
 6. John will match synonyms and antonyms with 60% accuracy.
 7. John will do homework using his vocabulary and spelling words four out of five school days per week with 95% compliance.

Social Skills

John is able to respond to "yes/no" and other simple questions "How are you?" and "How old are you?" and "Who is your teacher?" He still has inconsistent eye contact with the person speaking, and does participate in turn taking activities with minimal assistance.

- A. Annual Goal: John will demonstrate improved social skills.
- B. Short-Term Objectives:
 1. John will look at the person speaking/signing with minimal prompts 90% of the time. (as his Vision Therapy progresses)
 2. John will look at the person speaking/signing without prompts 60% of the time.

Instructional Planning & Delivery

3. John will address all adults and students he regularly comes in contact with by name, and will use appropriate pleasantries (please, thank you, etc.) with fading models/prompts 65% of the time.
4. John will raise his hand in class with fading prompts/models 75% of the time.
5. John will participate in turn taking during group activities with minimal assistance 90% of the time.
6. During connect, John will learn the name of a "connect peer partner (student)" and interact with that student using the skills listed above with minimal assistance 75% of the time
7. John will take a "signed/verbal" message from one person to another, and deliver the message correctly, 75% of the time.
8. During connect, John will participate in group activities and games with minimal assistance from a connect-peer partner, with 60% compliance.
9. John will self-initiate a request for things he wants that he has visual access to with 90% accuracy.

Math --Sequencing/Measurement

John is able to identify the season and weather. He can sign the name and match the correct value of a penny and nickel. He is not currently able to match the value of a dime and quarter. He can tell time to the hour, but not to the half hour. He can read and sequence the days of the week and the months of the year.

- A. Annual Goal: John will exhibit skills in using sequencing and measurement.
- B. Short-Term Objectives:
 1. Given real or play coins and bills, and cards with money values, John will sign the name of the coin and match the correct value to it with 90% accuracy.
 2. Given a play or printed clock, John will tell time to the nearest five minutes with 90% accuracy.
 3. John will choose congruent shapes with 80% accuracy.
 4. John will identify the number of sides of a shape with 80% accuracy.
 5. John will utilize a ruler to measure a given object in inches with 90% accuracy.
 6. John will complete a pattern by choosing the next shape in a sequence of shapes with 80% accuracy.
 7. John will complete a pattern by drawing the next shape in a sequence of shapes with 75% accuracy.
 8. John will sequence by size with 80% accuracy.
 9. John will evidence understanding of a calendar, and the terms "next," and "last," as it applies to the calendar with 60% accuracy.
 10. John will use position words to identify placement of an object in a picture with 80% accuracy.
 11. John will answer simple word problems using the above skills with 60% accuracy.
 12. John will do math homework four out of five days per week, with 95% compliance.

Math - Computing Skills

John can count to 100 with visual prompts and can count to 30 without visual prompts. He is able to skip count by 10's, but cannot consistently skip count by 5's. He can read and sequence number words one through ten, but cannot consistently sequence number words eleven through twenty. John is able to add very simple problems using manipulatives. He cannot add addition problems with sums up to 15 with or without manipulatives.

- A. Annual Goal: John will skip count to 100 and compute with whole numbers.
- B. Short Term Goals

1. Given number words 11 - 20, and by 10's to 100, John will read and sequence them in order with 80% accuracy.
2. John will write the numbers 1 - 100 without visual prompts with 80% accuracy.
3. John will skip count
 - a. By 5's with 100% accuracy
 - b. By 2's with 75% accuracy
 - c. By 25's with 100% accuracy
4. John will add with manipulatives/pictures to 20 with 90% accuracy.
5. John will demonstrate knowledge of ordinal numbers with 90% accuracy.
6. John will learn place value (i.e. $73 = 7 \text{ 10's and } 3 \text{ 1's}$) with 60% accuracy.
7. John will add without manipulatives, but with picture aids, to 100's with 50% accuracy.
8. John will subtract with manipulatives to 20 with 75% accuracy.
9. John will demonstrate knowledge of the terms "more" and "less," with 90% accuracy.
10. John will answer simple word problems using the above skills, and choose the correct answer from a field of two or three with 60% accuracy.
11. John will do math homework (including sequencing/measuring), four out of five school days per week.

Test Prep -- All Subjects

John is able to answer direct questions when they are signed and spoken to him. John is not able to answer written questions.

- A. Annual Goal: John will be able to take a test by "filling in the bubbles," on paper and on computer.
- B. Short-Term Objectives:
 1. John will circle the correct answer from a field of two on paper with 90% accuracy.
 2. John will circle the correct answer from a field of four on paper with 80% accuracy.
 3. John will choose the correct answer from a field of two and fill in the correct bubble, with 70% accuracy on paper.
 4. John will choose the correct answer from a field of three and fill in the correct bubble, with 65% accuracy on paper.
 5. John will choose the correct answer from a field of four and fill in the correct bubble, with 60% accuracy on paper.
 6. John will choose the correct answer from a field of two and mark the correct spot, on the computer, with 80% accuracy.
 7. John will choose the correct answer from a field of three and mark the correct spot, on the computer, with 80% accuracy.

Adaptive Equipment --FM system/hearing aids

John currently uses an FM system with bilateral BTE hearing aids. He can localize sounds with the FM microphone off (hearing aids set on B). He can respond to questions, from across a busy classroom, with the FM microphone turned on (hearing aids set on B). He becomes frustrated with continued FM use, when it is left on, but not used for specific communication with him. He then blocks out the sound as "white noise." When the BTE receivers are set on F, he will not hear any sounds with the microphone off. With the BTE receivers set on M, he will not hear any sounds through the FM microphone.

- A. Annual Goal: John will utilize his FM system.
- B. Short-Term Objectives:
 1. John will wear his BTE hearing aids at all times with 100% compliance.
 2. John will wear the BTE receivers set at B 100% of the time.
 3. John will utilize the FM system at appropriate 1:1 or classroom lecture times with 90% compliance.

Instructional Planning & Delivery

4. John will have the FM microphone turned off during times the person transmitting is not directly addressing him with 90% compliance.
5. John will have the FM microphone turned off while on the playground, and only turned on for direct communications with him with 90% compliance.
6. John will have any person working with him instructed in the correct use of the microphone, before that person uses it, 100% of the time.

Additional OT goal: OT goal - Sensory Integration - Classroom Strategies

John demonstrates significant sensory integrative dysfunction. He demonstrates difficulties with organization, modulation and interpretation of sensory input necessary for adaptive emotional, behavioral, and motor functioning. John is constantly seeking out movement and heavy input to his muscles; to help him focus and organize himself. John's convergence palsy and disorder of accommodation affect his eye hand coordination and make near/far visual tracking extremely difficult.

- A. Annual Goal: John will get the sensory information he needs during the school day; to help him focus and organize himself.
- B. Short-Term Objectives:
 1. John will work at his own desk (with assistance as needed), remaining seated in his chair using a Move-N-Sit, for 10 minutes.
 2. John will work at his own desk without kicking the table, using stretchable tubing or theraband around the front legs of his chair to stretch with his legs, for 10 minutes with fading prompts.
 3. John will remain seated in his chair with aids listed above for 20 minutes without prompts.
 4. John will use his "chill out" space to regroup and organize himself as needed, less than 10 times a day.
 5. John will use his "chill out" space to regroup and organize himself as needed, less than 5 times a day.
 6. John will do "heavy work jobs," such as carrying a few heavy books to the shelf, stacking chairs, or washing the tables or blackboard, for proprioceptive input at least twice daily.
 7. John will use "high contrast" paper for writing, 80% of the time.
 8. John will have a "desk copy" of work written on the blackboard, for "copy work" to minimize near/far tracking problems, 80% of the time.

Additional Speech Goal

John will point to things he wants. He will ask for them (I want orange car) when prompted.

- A. Annual Goal: John will self-initiate requests.
- B. Short-Term Objectives:
 1. John will sign/say his request for something he wants, and has visual access to, when prompted, 90% of the time.
 2. John will sign/say his request for something he wants, and has visual access to, without prompts, 80% of the time.

Written by Deb Hall, December 2000

Can also be found at: www.geocities.com/~kasmom/samples/goals.html

Page _____ of _____

NAME OF STUDENT

CAMPUS

SPECIAL LANGUAGE PROGRAMS¹

- ### BEHAVIOR MANAGEMENT PLAN

- ### REGULAR DISCIPLINE PLAN

- ☐
- MODIFICATIONS NOT
-
- NEEDED OR NOT
-
- APPLICABLE

Reduced assignments

Taped assignments

Extra time for completing assignments

Opportunity to respond orally

Emphasis on major points

Task analysis of assignments

Special projects in lieu of assignments

Other:

Other:

ADAPT INSTRUCTION BY PROVIDING:

Opportunity to leave class for resource assistance

Short instructions (1 or 2 steps)

Opportunity to repeat and explain instructions

Encouragement to verbalize steps needed to complete assignment / task

Opportunity to write instructions

Assignment notebooks

Visual aids (pictures, flash cards, etc.)

Auditory aids (cues, tapes, etc.)

Instructional aids

Extra time for oral response

Extra time for written response

Exams of reduced length

Oral exams

Open book exams

Study carrel for independent work

- Frequent feedback

Immediate feedback

Minimal auditory distractions

Encouragement for classroom participation

Peer tutoring/paired working arrangement

Opportunity for student to dictate themes, information, answers on tape or to others

Adjustment for misarticulation(s)

Other: _____

Other:

¹Special language programs are required for all students who are limited English proficient.

★ Denotes required items.

Resources for Serving Students with Special Needs

There are a couple of excellent resources for special education teachers that we would like to highlight. First, **The National Information Center for Children and Youth with Disabilities** (www.nichcy.org), has links to agencies in all the states as well as many other resources. The **National Center on Secondary Education and Transition** (www.ncset.org) has useful information that is conveniently sorted by topic and contains many excellent links.

Office of Special Education, US Department of Education	http://www.ed.gov/about/offices/list/osers/index.html
IDEA '97 Regulations	http://www.ed.gov/offices/OSERS/Policy/IDEA/the_law.html
National Center for Educational Statistics	http://nces.ed.gov/
Council for Exceptional Children Page	http://www.cec.sped.org/
National Center for Learning Disabilities	http://www.ld.org/
Special Education Network	http://www.specialednet.com/
Federation for Children with Special Needs	http://www.fcsn.org/
Special Education News	http://www.specialednews.com/
Special Education on the Web	http://members.tripod.com/Spec_Ed/Index.htm
Special Educator's Web Page	http://www.geocities.com/Athens/Styx/7315/
Sped Online	http://www.spedonline.com/
Understanding the IEP	http://www.ldonline.org/ld_indepth/iep/iep.html

Various Programs for English Language Learners: Bilingual and ESL Programs

	PROGRAM NAMES AND VARIATIONS	LINGUISTIC GOAL FOR STUDENTS	NATIVE LANGUAGE OF STUDENTS	LANGUAGE FOR LANG. ARTS INSTR.	LANGUAGE FOR CONTENT AREA INSTR.
BILINGUAL	<ul style="list-style-type: none"> •Two-way Bilingual Ed. •Bilingual Immersion •Dual Lang. Immersion 	Bilingualism	Ideally, 50% English-speaking and 50% ELL students sharing the same native language	English and the native language	English and the native language
	<ul style="list-style-type: none"> •Late-exit •Developmental Bilingual Education 	Bilingualism	All students speak the same native language	English and the native language	At first, mostly the native language, then English instruction increases as students gain proficiency
	<ul style="list-style-type: none"> •Early-exit •Transitional Bilingual Ed. 	English acquisition; rapid transfer into English-only classroom	All students speak the same native language	English; native language skills are developed only to assist transition to English	Both, with quick procession to all or most instruction through English.
ESL	<ul style="list-style-type: none"> •Sheltered English, •Structured Immersion •Content-based ESL 	English Acquisition	Students can share the same native language or be from different language backgrounds.	English	English adapted to the students' proficiency level, and supplemented by gestures and visual aids
	<ul style="list-style-type: none"> •Pull-out ESL 	English Acquisition	Students share the same native language or are from different language backgrounds	English; students leave their English-only classroom to spend part of their day receiving ESL instruction	English adapted to the students' proficiency level, and supplemented by gestures and visual aide.

A Brief History of ESL and Bilingual Education

Bilingual education in the United States dates back farther than you might imagine – as far back as the first settlements in North America in 1664. In addition to many Native-American languages, at least eighteen languages were spoken in the U.S. in the 17th century. During the 18th and 19th centuries, groups with various cultural and linguistic backgrounds continued to settle across the country, and starting in 1839 some states began to adopt bilingual education laws that authorized instruction in languages other than English.

However, during the first few decades of this century, immigrants – especially those in large urban areas – were taught to assimilate and encouraged to replace their own cultural heritage with a more “American” one (a trend commonly attributed to the changing political winds of WWI). Although some communities taught students in their native languages, non-English speakers were often “submerged” in the English-only classroom with no second language instruction. By the mid-1920s, most bilingual schools throughout the country were dismantled, and English-only instruction continued until the 1960’s, when the government stepped in again to sanction bilingual programs.

1963—Largely as a result of the rise in the number of Cuban immigrants during the 1960s, the first large-scale government-sanctioned bilingual program was initiated in Dade County, Florida, and soon became an unofficial model for the nation. Educators from all over the country came to examine the curriculum in an effort to investigate the use of bilingual schooling for **English Language Learners (ELL)**.

1966—**TESOL** (Teachers of English to Speakers of Other Languages), a professional organization, was established in response to the increased demand for ESL materials and methodologies due to the influx of immigrants, refugees, and international students to the United States.

1968—Congress passed the **Bilingual Education Act** under Title VII of the Elementary and Secondary Education Act. This represented the first national acknowledgment of the special educational needs of non/limited-English speaking children. Under Title VII’s “poverty criterion” for eligibility, however, bilingual education was seen as a strategy for “repudiating the effects of poverty and cultural disadvantage”.

1974—A suit by the Puerto Rican Legal and Educational Fund resulted in a Federal court order that required the New York City chancellor of education to develop adequate bilingual programs that included intensive English instruction and some content instruction in Spanish.

1974—In the pivotal *Lau vs. Nichols* case, the U.S. Supreme Court ruled that Lau and 1,789 other Chinese students in San Francisco were being denied access to **equal educational opportunities** because they could not sufficiently understand the language of instruction. The Lau case set the expectation that school systems must adopt some kind of comprehensive strategy that addressed the needs of non-English speaking students, though the Court refused to mandate any particular model.

1984—The majority of programs funded by the Elementary and Secondary Education Act (ESEA) were re-organized into two divisions. Title I provides money for disadvantaged students, as well as migrant education programs. Title II provides block grants to the states under such laws as “Ethnic Heritage Act” and the “Emergency School Aid Act.” Funding for **Limited English Proficient (LEP)** students (another term for ELL), comes from all of these programs to varying degrees.

1998—California’s Proposition 227 was passed during the primary election and effectively restructured education for language minority students by mandating a one-year **structured English immersion (SEI)** program, although parents can choose to opt out of the program. Proponents of 227 have maintained that LEP students have acquired English at a higher rate since the inception of the proposition in school year 1998-99. Many academics, however, have found no empirical evidence supporting the assertion that LEP students have benefited from the legislation.

2000—The frenzied bilingual debate showed no sign of slowing down. Arizona passed Proposition 203 and effectively ended bilingual education in that state. Led by California software mogul Ron Unz, the non-profit corporation *One Nation, One California* is pursuing similar legislation in Colorado, New York, Massachusetts, and Texas.

This is obviously only a cursory glimpse at the history of bilingual education, but this summary of laws and events does provide important background and introduce a number of terms that all teachers need to know and understand.

ESL and Bilingual Resources on the Web

Assessment

Assessing Language-Minority Students	http://www.ericdigests.org/1993/students.htm
Organizing and Assessing in the Content Area Class	http://www.everythingesl.net/in-services/judith2.php
Practical Ideas on Alternative Assessment for ESL Students ERIC Digest	http://www.ericdigests.org/1997-1/esl.html

Elementary, General

Meeting the Challenge of Content Instruction in the K-8 Classroom, Part I	http://www.tesol.org/s_tesol/sec_document.asp?CID=196&DID=554
---	---

Exceptional Children

Assessing LEP Migrant Students for Special Education Services ERIC Digest	http://www.ericdigests.org/1999-3/lep.htm
Bilingual Special Education ERIC Digest	http://www.ericdigests.org/pre-9219/education.htm
Effective Instruction for Language Minority Children with Mild Disabilities ERIC Digest	http://www.ericdigests.org/pre-9220/mild.htm
ESL in Special Education ERIC Digest	http://www.ericdigests.org/pre-9210/special.htm
ESL Literacy for a Linguistic Minority The Deaf Experience ERIC Digest	http://www.ericdigests.org/1993/deaf.htm
Identifying and Assessing Gifted and Talented Bilingual Hispanic Students ERIC Digest	http://www.ericdigests.org/1999-2/gifted.htm
Meeting the Needs of Gifted and Talented Minority Language Students ERIC Digest	http://www.ericdigests.org/1995-1/gifted.htm
Referring Language Minority Students to Special Education ERIC Digest	http://www.ericdigests.org/pre-9219/minority.htm
Teaching English to the Gifted Student ERIC Digest	http://www.ericdigests.org/pre-924/gifted.htm

Legal Issues and History

Integrating Title I and Title VII: The Evolving Model of Dearborn Public Schools, Michigan	http://www.ncela.gwu.edu/pubs/pigs/pig21.htm
OCR Policy Update on Schools' Obligations Toward National Origin Minority Students	http://www.ed.gov/about/offices/list/ocr/docs/lau1991.html

Math

A Mathematical Problem: How Do We Teach Mathematics To LEP Elementary Students	http://www.ncela.gwu.edu/pubs/jeilms/vol13/math13.htm
Improving Mathematics and Science Instruction for LEP Middle and High School Students	http://www.ncela.gwu.edu/pubs/symposia/third/reyhner.htm
Innovative Strategies for Teaching Mathematics to Limited English Proficient Students	http://www.ncela.gwu.edu/pubs/classics/pig/10math.htm

Preparing Secondary Education Teachers to Work with English Language Learners Mathematics	http://www.ncela.gwu.edu/pubs/resource/ells/math.htm
Reforming Mathematics Instruction for ESL Literacy Students ERIC Digest	http://www.ericdigests.org/1998-2/reforming.htm
Teaching Limited English Proficient Students To Understand and Use Mathematics ERIC-CUE D	http://www.ericdigests.org/pre-9220/limited.htm
Teaching Mathematics to Limited English Proficient Students ERIC Digests	http://www.ericdigests.org/pre-9214/english.htm

Parents

Bringing the Families Into the School	http://www.tesol.org/s_tesol/sec_document.asp?CID=196&DID=590
Critical Elements in Parental Involvement of Culturally and Linguistically Diverse Parents	http://www.ncela.gwu.edu/pubs/nabe/bri/v16/16_34_ensle.pdf
Parent Bilingual Brochures UIC Center for Literacy	http://www.ncela.gwu.edu/pubs/flame/
Parent Guide If Your Child Learns in Two Languages	http://www.ncela.gwu.edu/pubs/parent/
Parental Involvement: A Resource for the Education of LEP Students	http://www.ncela.gwu.edu/pubs/classics/pig/08parental.htm
Publications for Parents and Others (Spanish) by the Department of Public Education	http://www.ed.gov/espanol/publicaciones/es/edpubs.html

Reading and Writing

Vocabulary and Reading Comprehension Activities for Language Minority Students	http://www.indiana.edu/~reading/ieo/bibs/vocabrng.html
Reading Proficiency, Reading Strategies, Metacognitive Awareness and L2 Readers	http://www.readingmatrix.com/articles/singhal/

Elementary Literacy

Children's Writing in ESL ERIC Digest	http://www.ericdigests.org/pre-9210/writing.htm
Guidelines for Teachers of Young Children from Non-Literate Backgrounds	http://www.ncela.gwu.edu/pubs/classics/trg/01literacy.htm

Secondary Reading and English

Preparing Secondary Education Teachers to Work with ELLs English Language Arts	http://www.ncela.gwu.edu/pubs/resource/ells/language.htm
--	---

Instructional Planning & Delivery

Science

Preparing Secondary Education Teachers to Work with ELLs (Science)	http://www.ncela.gwu.edu/pubs/resource/ells/science.htm
Teaching Science Effectively to Limited English Proficient Students	http://www.ericdigests.org/1993/science.htm
Teaching Science to English Language Learners, Grades 4-8	http://www.ncela.gwu.edu/pubs/pigs/pig11.htm

Secondary, General

Promoting Secondary School Transitions for Immigrant Adolescents ERIC Digest	http://www.ericdigests.org/1997-3/promoting.html
Strategies for Success: Engaging Immigrant Students in Secondary Schools ERIC Digest	http://www.ericdigests.org/2001-1/success.html
Ways to Help the Non-native Speakers in Your Class	http://www.utoronto.ca/writing/facesl.html

Social Studies

Language and Content-Area Instruction for Secondary LEP Students, 1987	http://www.ncela.gwu.edu/pubs/classics/trq/03content.htm
Preparing Secondary Education Teachers Social Studies	http://www.ncela.gwu.edu/pubs/resource/ells/social.htm

Specific Cultures

Arab American Students in Public Schools	http://www.ericdigests.org/1999-4/arab.htm
Beyond Culture: Communicating with Asian American Children and Families	http://www.ericdigests.org/1994/culture.htm
Enhancing the Communication Skills of Newly-Arrived Asian American Students	http://www.ericdigests.org/1999-1/asian.html
Matching Teaching Styles with Learning Styles in East Asian Contexts	http://iteslj.org/Techniques/Zhenhui-TeachingStyles.html
Other Resources	http://members.aol.com/adrmoser/other.html

Teacher Education

Educating Teachers for Cultural and Linguistic Diversity	http://www.ncela.gwu.edu/pubs/nysabe/vol9/model.htm
Preparing Teachers for Multicultural Classrooms	http://www.ncela.gwu.edu/pubs/jeilms/vol14/chisholm.htm

Teaching English Language Learners

Academic Achievement for Secondary Language Minority Students	http://www.ncela.gwu.edu/pubs/reports/acadach.htm
Age and Length of Time it Takes to Learn English-- Research Summary	www.utpb.edu/courses/fall99/educ4329/handouts/Collier.html
Claims and Counter-claims about Reading, Academic Language, Pedagogy and Assessment	http://www.iteachilearn.com/cummins/claims.html
Classroom Strategies for Encouraging Collaborative Discussion	www.ncela.edu/pubs/directions/12.htm

Helping Limited English Proficient Children Communicate in the Classroom	http://www.ncela.gwu.edu/pubs/classics/pig/09helping.htm
Myths and Misconceptions about Second Language Learning: What Every Teacher Needs to Unlearn	http://www.ncela.gwu.edu/pubs/symposia/reading/article6/mclaughlin93.html
Reducing Failure of LEP Students in the Mainstream Classroom and Why it is Important	http://www.ncela.gwu.edu/pubs/jeilms/vol15/reducing.htm
The Effect of Age on Acquisition of a Second Language for School	http://www.ncela.gwu.edu/pubs/classics/focus/02aage.htm
Working With English Language Learners: Strategies for Elementary and Middle School Teachers	http://www.ncela.gwu.edu/pubs/pigs/pig19.htm

Content-Based Instruction

1st Symposium: LEP Students and the Integration of Language and Content Knowledge Structure	http://www.ncela.gwu.edu/pubs/symposia/first/lep-dis.htm
ESL through Content Area Instruction	http://www.ericdigests.org/pre-929/esl.htm
Sheltered English Instruction ERIC Digest	http://www.ericdigests.org/pre-9210/english.htm

Technology for English Language Learners

Electronic Texts and ESL	http://www.albany.edu/etap/faculty/CarlaMeskill/publication/IETTL.pdf
English Language Learners and Technology: Challenges, Constraints, and Teacher Strategies	http://www.albany.edu/etap/faculty/CarlaMeskill/publication/IETTL.pdf
ESL in the Mainstream: How Technology Can Help!	http://www.lclark.edu/~krauss/eslinthemainstream.html
Guidelines for Computer-Assisted Reading Instruction ERIC Digest	http://www.ericdigests.org/1993/computer.htm

Sample Grading Systems

Teachers develop their grading systems based on a combination of factors, including district policy, the nature of their content area, and personal judgment. Here are five different approaches from corps members and alumni, as well as some pages from their actual record-keeping logs.

Jill Evancho, New Jersey '00, Kindergarten

Grading system. My grading system is very different than a numerical calculation of tests, quizzes, etc. In kindergarten in Newark, we give specific math and literacy assessments at the beginning and end of the year, and the results are sent to the district office. The tests are given individually to each student, and we monitor the student's progress against a benchmark, and we also make observational notes about each student. Our report cards are also not based on numerical averages, but on student observation. We give S(secure), D(developing), E(emerging) and NE (not evident) on the specific individual skills listed on the report card (for example, counts orally to 50, or writes first and last name).

All the objectives in each area that are on the report card are on a spreadsheet I've created, and I record all the grades on the spreadsheet first, then transfer them over to the report cards. Most of the objectives are tested individually in a performance-based assessment (i.e., the child counts to fifty by him/herself, and I use his/her performance to give a grade). I use a written assessment for a few of these objectives: for matching beginning and ending consonant sounds, I give a sheet with pictures on it and the students write the letter it begins or ends with underneath it. To assess the writing objectives, I use 2 or 3 writing samples the student has completed during the marking period, and just check if there are spaces between words, etc. The behavioral objectives are all assessed based on observations of the students' interactions and behavior in a large or small group. Not all of the objectives are graded every marking period. If we have not taught the objective, we can put NT. By the end of the year, all of them will be taught and assessed.

The following page is one of the spreadsheet documents that Jill uses to record her students' performance.

Work Habits							
	makes decisions in choosing activities	finishes most activities	moves easily from 1 activity to another	follows directions	returns material	works toward personal best	can work independently
Amber							
Brandon O.							
Brandon F.							
Christopher							
Darren							
Isai							
Jonathan							
Johnathan							
Jose							
Karina							
Luis							
Lloyd							
Lamar							
Noellia							
Olivia							
Patricia							
Stephanie							
Salonia							
Shakira							
Tiffany							

Instructional Planning & Delivery

Susan Asiyambi, New Jersey '01, Fourth Grade Math

Attendance. The school has a standard form where you are supposed to fill out attendance. However, the school only requires you to report whether the student is absent or present. I use a system of 1 and 2. One means absent. Two means late. An empty box means the student was present. I do this because the report cards require the teachers to document the number of present, absent and tardy days. Also, if a student is to be classified or resourced under the special education system, or has trouble with academics, evidence of his or her attendance record is crucial. This shortens the work for me in the long run, even though it is not technically required on the daily attendance forms.

Percentage breakdown. Final grades are assigned based on the system below:

- 25% -- test
- 15% -- comprehension and mental math quiz
- 15% -- open-ended quiz
- 15% -- notetaking/journal
- 10% -- homework
- 10% -- participation
- 10% -- in-class work

Assessment routines. Every month, the students get an agenda of what will be covered for that month. Each week they take a quiz, and on Friday they receive a journal/notebook grade. At the end of the month, the students take a test based on the monthly agenda. This allows me to see if the material has been instilled. It also allows the students to see their own personal progress month to month, based on the agenda. Students each have a file under their group desk where they place their own papers once they have been graded and reviewed. Accordingly, students have the responsibility of giving their parents a self-report of their strengths and weaknesses using their file as a source.

Homework. Homework is checked daily on a check-plus, check, check-minus and zero system. I do it this way because my main concern with homework is to check if students put full effort into the assignment. I also want to see whether the kids have gotten a full grasp of the material covered in class. I check it daily as a barometer for students who fall between two grades on the report card. When students come into class, they place homework into their assigned color bucket. Their first job is to copy down the objective and answer the journal question. While they are answering the journal question, this gives me the opportunity to comment on their homework and put it in the gradebook. It also allows me the opportunity to address a student right on the spot who has not tried their best with the assignment or who has not completed it at all. Having the students see my grade book and my fully staying on top of them daily forces them to turn in homework regularly because they'd rather not deal with the embarrassment of a conference and the consequences.

Reading grades. I use Excel to track my reading grades instead of my grade book because I have fewer students, and reading groups change every eight weeks according to our Success For All Reading Program. Furthermore, teachers are required to fill out and turn in a weekly summary report sheet; therefore, keeping the grades on Excel allows me to personally keep the grades week to week just in case my administrator does not return the weekly grades back to me in a timely manner.

An example Excel spreadsheet from Susan's system appears on the next page.

PAGE 2

SFA 3rd Cycle Grades
Wings 5.1, 5.2, 6.1

Student Wings Level 3.1 Homeroom	Words Out Loud					Story Test					Meaningful Sentence					Reading Comp					A. in Writing				
	1	2	3	4	5 Av	1	2	3	4	5 Av	1	2	3	4	5 Av	1	2	3	4	5 Av	1	2	3	4	5 Av
	100	100	100								30	100	80			100	100	100			100	100	100		
	100	100	100								70	85	75			100	100	100			100	75	80		
	100	100	100								70	90	80			100	100	100			100	90	80		
	100	100	100								70	100	90			100	100	100			100	90	75		
	100	100	90								75	100	80			100	100	80			100	100	90		
	100	100									30	90	100			100	100				100	100	100		
	100	100	100								70	70	90			100	100	80			100	100	90		
	100	100	100								80	90	90			100	100	100			100	75	100		
	95	100	75								100	60	20			70	100	60			100	75	70		
	100	100	90								80	100	95			100	100	100			100	80	80		

Instructional Planning & Delivery

Ben Phillips, New York '00, Fourth Grade

Attendance. Attendance records are legal documents that can be used in court. The school system has very specific tools for keeping attendance. I submit a daily report, and I keep note of student attendance on a form provided by the school.

Philosophy. Assessment, at least for progressive elementary school teachers, is primarily qualitative and descriptive. Record-keeping is closely tied to an individual's teaching style, and it varies widely by grade level and class culture. We use running records, anecdotal records of student behavior, and rubric-based portfolio assessment. While these approaches to assessment are multifaceted and therefore complex tools to model to new teachers, they are absolutely crucial to effective teaching because they provide evidence of teaching that is matched to what the student is learning. My goal is to make assessment 100% transparent to students. The assessment tools are teaching tools. "This is what you need to know, and this is what you learned already!"

Since my approach to assessment is holistic and descriptive, I do not use percentage breakdowns.

Homework. Daily grading of every homework assignment is cumbersome and unnecessary. Homework is a stepping off point for a new lesson. For daily math homework, I place a checkmark on the page after quickly scanning to see if the child made an honest attempt to complete the assignment. The system is fast and painless. It has the added benefit of making the child responsible for homework. My lesson then begins with the statement, "Share a homework challenge." The students then copy my teaching model into their notebooks. Periodically, such as when a parent is coming for a conference, I will peruse a student's notebook to write questions, note major missing components, and write encouraging words on the notebook. For other subjects, such as literacy, I check to see that the child has attempted the assignment, and I ask volunteers to share.

Quizzes. Similarly, I do not usually grade quizzes. I look closely at the work while and after the student does it so I can take note of what has been learned and what needs to be re-taught. I do not reduce the work to a "grade" at that point since the goal is for the student to learn the material, not for the student to earn a grade.

Tests. I give tests, and I grade them using a rubric that the students receive usually at the beginning of a unit and definitely prior to a final review. I'm known for giving the students the same pre and post-test. I scan the pretest to see what I should emphasize, and I evaluate the post-test with the rubric to see what the student was able to demonstrate and what needs to be revisited. The rubric does lead to a percentage grade, which is recorded in my record book. In this case, I've decided that percentage grades are important because parents understand them more than 3s and 4s on rubric or lengthy descriptions from teachers. That's the only reason I would ever give a letter or percentage grade -- to be explicit with parents. (The percentages I record in the book are NOT the sole determinant of a students' report card evaluation. Instead, the reports cards describe a student's daily learning process toward goals, a process which is ongoing.)

Tracking grades. I use Lee Canter's Record Book Plus, which is a widely available publication of Canter and Associates (1-800 262 4347). In the back of the record book are sections for behavior documentation, and parent interaction notes. Having all three components -- grades, behavior, and parent notes - in one book is absolutely key for me to stay organized. I can say, "Johnny got a 34 on his test. According to my notes, he tends to look out the window during math class. Remember, Johnny, when I said that your class work was not complete? Let's look in your notebook to see what you've been

learning. Johnny, where is your homework from last night?" These tests are kept in portfolios for each child, along with interesting work samples from each unit.

Margaret Bothner, DC '98, Seventh Grade Science

Attendance. I very quickly took attendance at the beginning of class while students were working on their Focus (a 5-7 minute review activity that assessed understanding of the objective(s) from the day before). In the grids of my attendance book, I left the box empty if the student was present (although I wrote "All Present" in the column when every student was there – basically just because I was excited on those days!). A slash meant the student was absent. If students came in late with a pass, I wrote "ex" (for excused) in the box around the slash. If they came in late without a pass, I just put another slash in the box to make an X, signifying an unexcused tardy. The school required us to turn in scan-tron forms of attendance, but I wanted to keep my own records as well so I could refer to them when meeting with parents.

Grading System. I usually gave homework Monday through Thursday night. During the Focus time (in addition to quickly taking attendance) I circulated around the room and stamped each student's "Resource Book" (which each student had to purchase from the school at the beginning of the year) in the science box if they completed their homework. They knew that their homework had to demonstrate full effort to receive the stamp. If they didn't complete the homework at all or if they put in minimal effort, I could talk to them quickly right then. Students really loved getting the stamp (which I would change frequently – sometimes a brain, sometimes a planet, sometimes a frog...but always something to do with science). On Mondays, when I didn't have a homework assignment to check, I would circulate and write down the number of stamps they had received the week before in my grade book. I hardly ever collected homework for a more extensive review, but students were required to keep all homework assignments in the homework section of their science notebook, and I would sometimes check a few of these more closely after school (students left these on a bookcase in my room and only took them home with special permission). A homework assignment was worth 1 point each, and there were typically 25 – 30 assignments in a quarter. At the end of each week I would collect their Focus activities and grade those. Each day's Focus was worth 5 points, for 25 points total if the week had 5 days. Quizzes were worth 50 points (with an extra credit question that was worth 5 points) and tests and other end-of-quarter assessments were worth 100 points. The bulk of their grade definitely came from quizzes, tests, and other summative assessments, although homework, the Focus, and other class work factored in too. At the end of the quarter I would add up the number of homework assignments completed, the average of the Focus grades, and the total points from quizzes and tests. Then, I would divide by the total number of points available for the overall percentage.

The following pages contain examples from Margaret's gradebook and attendance records.

TEACHER RECORDS									
Subject <u>Science</u>									
Class <u>7-310</u>									
Student	Date	HW 1	HW 2	HW 3	HW 4	HW 5	HW 6	HW 7	HW 8
1		0213	0213	0213	0213	0213	0213	0213	0213
2		0213	0213	0213	0213	0213	0213	0213	0213
3		0213	0213	0213	0213	0213	0213	0213	0213
4		0213	0213	0213	0213	0213	0213	0213	0213
5		0213	0213	0213	0213	0213	0213	0213	0213
6		0213	0213	0213	0213	0213	0213	0213	0213
7		0213	0213	0213	0213	0213	0213	0213	0213
8		0213	0213	0213	0213	0213	0213	0213	0213
9		0213	0213	0213	0213	0213	0213	0213	0213
10		0213	0213	0213	0213	0213	0213	0213	0213
11		0213	0213	0213	0213	0213	0213	0213	0213
12		0213	0213	0213	0213	0213	0213	0213	0213
13		0213	0213	0213	0213	0213	0213	0213	0213
14		0213	0213	0213	0213	0213	0213	0213	0213
15		0213	0213	0213	0213	0213	0213	0213	0213
16		0213	0213	0213	0213	0213	0213	0213	0213
17		0213	0213	0213	0213	0213	0213	0213	0213
18		0213	0213	0213	0213	0213	0213	0213	0213
19		0213	0213	0213	0213	0213	0213	0213	0213
20		0213	0213	0213	0213	0213	0213	0213	0213
21		0213	0213	0213	0213	0213	0213	0213	0213
22		0213	0213	0213	0213	0213	0213	0213	0213
23		0213	0213	0213	0213	0213	0213	0213	0213
24		0213	0213	0213	0213	0213	0213	0213	0213
25		0213	0213	0213	0213	0213	0213	0213	0213
26		0213	0213	0213	0213	0213	0213	0213	0213
27		0213	0213	0213	0213	0213	0213	0213	0213
28		0213	0213	0213	0213	0213	0213	0213	0213
29		0213	0213	0213	0213	0213	0213	0213	0213
30		0213	0213	0213	0213	0213	0213	0213	0213

NAMES REDACTED

HW 1 9/11-9/15
HW 2 9/18-9/22
HW 3 9/25-9/29
HW 4 10/2-10/6
HW 5 10/10-10/14
HW 6 10/16-10/20
HW 7
HW 8

Focus 1 9/11-9/15
Focus 2 9/18-9/22
Focus 3 9/25-9/29
Focus 4 10/2-10/6
Focus 5 10/10-10/14
Focus 6 10/16-10/20

Quiz #1
Quiz #2
Quiz #3
Quiz #4
Measurement
Quiz #5 Is it alive

Graph
Test #1 R+P
Science Notebook
Test #2 Sci Met

7-302

TEAR

Subject Science
Class 7-302

Date _____

9/7	8	11	12	13	14	15	18	19	20	21	22	25	26	27	28	29	10/2	3	4	5	6
-----	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	------	---	---	---	---

Student

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

NAMES REDACTED

A hand-drawn sketch on graph paper, likely representing a geological cross-section. The sketch features a prominent wavy horizontal line across the middle. To the left of this line, there are labels 'F' at the top, 'B' in the middle, and 'B' at the bottom. To the right of the line, there are labels 'B' in the middle, 'B' below it, and 'F' below that. A vertical line is drawn through the center, with the text 'All Present' written vertically along it. There are various symbols and marks, including a large 'X' and several diagonal lines, scattered throughout the sketch.

Sample Computerized Gradebook

Lee County School District

FREN II

CADWALLADER, M

Course #: 401

Period: 2ND

Thursday, January 16, 2003
Section #: 1
Room #: 217

1	hwk	=	parent letter signed	20	quiz #5	=	quiz #5
2	hwk	=	materials	21	hwk	=	translate story for ch. 10
3	quiz #1	=	quiz #1	22	test	=	chapter 10 - oral
4	hwk	=	teach je m'appelle	23	test	=	chapter 10-written
5	hwk	=	Peekaboo's new ending	24	hwk	=	write Stephanie from memory
6	quiz #2	=	quiz #2	25	cahier	=	cahier #2
7	sub #1	=	sub #1	26	test	=	brochures de voyages
8	hwk	=	numbers 0-69	27	hwk	=	write Noel blanc 3x
9	quiz #3	=	quiz #3 tigre/mint-tigre	28	test	=	timed writing #1
10	hwk	=	les nombres	29	in-class	=	written exercises ch 11
11	sub #2	=	sub #2, chapter 9	30	quiz-s	=	quiz - Noel blanc
12	reading	=	Benoit, le mari - translation	31	hwk	=	Superman dans l'Utopie
13	hwk	=	les jours/les mois	32	hwk	=	translate 2 ch 11 stories
14	cahier	=	cahier grade	33	hwk	=	la marche des rois 3x
15	part	=	la participation	34	quiz-s	=	quiz - la marche des rois
16	sub #3	=	le monde francophone	35	dw	=	chapter 11 oral exercises
17	film #1	=	French Kiss #1	36	dw	=	chapter 11 exercises
18	film #2	=	French Kiss	37	part	=	participation #2
19	quiz #4	=	quiz - French Kiss	38	festival	=	festival - Noel

Name	Category	Date	Possible	Mean	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3	10	DW	08/28/	10	25	11	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
9	10	DW	08/30/	10	25	7.5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
12	10	DW	09/05/	10	25	11	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
15	10	DW	09/05/	10	25	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
18	0	DW	09/05/	10	25	8	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
21	10	DW	09/05/	10	25	11	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
24	0	DW	09/05/	10	25	9.5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
27	10	DW	09/05/	10	25	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
30	10	DW	09/05/	10	25	11	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
33	10	DW	09/05/	10	25	11	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
36	10	DW	09/05/	10	25	11	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
39	10	DW	09/05/	10	25	9	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
42	10	DW	09/05/	10	25	10.5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
45	10	DW	09/05/	10	25	8	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
51	10	DW	09/05/	10	25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.	8.66	25.00	9.32	6.85	2.40	5.67	63.00	9.93	6.66	32.26	23.60	17.46	17.80	90.60	92.33	9.06	3.53	2.86				
2.	10	DW	09/05/	10	25	11	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
3.	10	DW	09/05/	10	25	7.5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
4.	10	DW	09/05/	10	25	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
5.	0	DW	09/05/	10	25	8	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
6.	10	DW	09/05/	10	25	11	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
7.	0	DW	09/05/	10	25	9.5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
8.	10	DW	09/05/	10	25	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
9.	10	DW	09/05/	10	25	11	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
10.	10	DW	09/05/	10	25	11	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
11.	10	DW	09/05/	10	25	11	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
12.	10	DW	09/05/	10	25	9	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
13.	10	DW	09/05/	10	25	10.5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
14.	10	DW	09/05/	10	25	8	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
15.	10	DW	09/05/	10	25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Courtesy: Michele Cadwallader, Delta '97

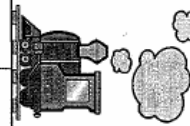
Sample Mastery Tracking Sheet

At regular intervals, you should assess your students and track their mastery of objectives on a chart, using the results to target your instruction on individual student needs. The following is an example of what a high quality tracking chart looks like. Notice how it provides significant details, such as student and class averages from each objective. It also gives the “big picture” – showing the cumulative mastery averages for individual students and the class as a whole. Viewing this information in one place gives you a clear, organized picture of what exactly students have mastered and what they still need help with.

Overall Unit Mastery:	Student Mastery Average	Measure distances on a variety of maps	use a map's index and grid to locate two points	accurately measure the distance between two points in inches and centimeters	convert the distance on a map the actual distance between two places on the map's scale	calculate distances between two points on a map of Africa	calculate distances between two points on a map of an African city
77.50%							
Class Mastery Averages by Skill		77.5%	92.5%	83.4%	71.0%	69.2%	71.6%
John	68.00%	68%	90%	70%	75%	45%	60%
Miguel	93.00%	93%	100%	85%	90%	95%	95%
Briana	67.00%	67%	90%	85%	45%	60%	55%
Maura	66.00%	66%	90%	90%	45%	50%	55%
Brandon	84.00%	84%	90%	80%	85%	85%	80%
Nicole	87.00%	87%	95%	90%	85%	80%	85%

Student's Mastery Checklist

Date	Mastery! (85)	MASTERY IN MATH
		I can add with regrouping!
		I can subtract with regrouping!
		I can solve addition and subtraction w.p.'s!
		I can place numbers in order!
		I can tell the value of a digit by place value!
		I can round to the nearest ten!
		I can round to the nearest hundred!
		I can estimate answers!
		I can tell time on digital clocks!
		I can tell time on digital and regular clocks!
		I can tell elapsed time!
		I can read a schedule!
		I can solve time word problems!
		I can use skip-counting to count coins!
		I can estimate the value of a set of coins!
		I can use skip-counting to count bills!
		I can solve money word problems!
		I can correctly read numbers to 1 million!
		I can correctly write numbers to 1 million!
		I can use number patterns to predict!
		I can use shape patters to predict!

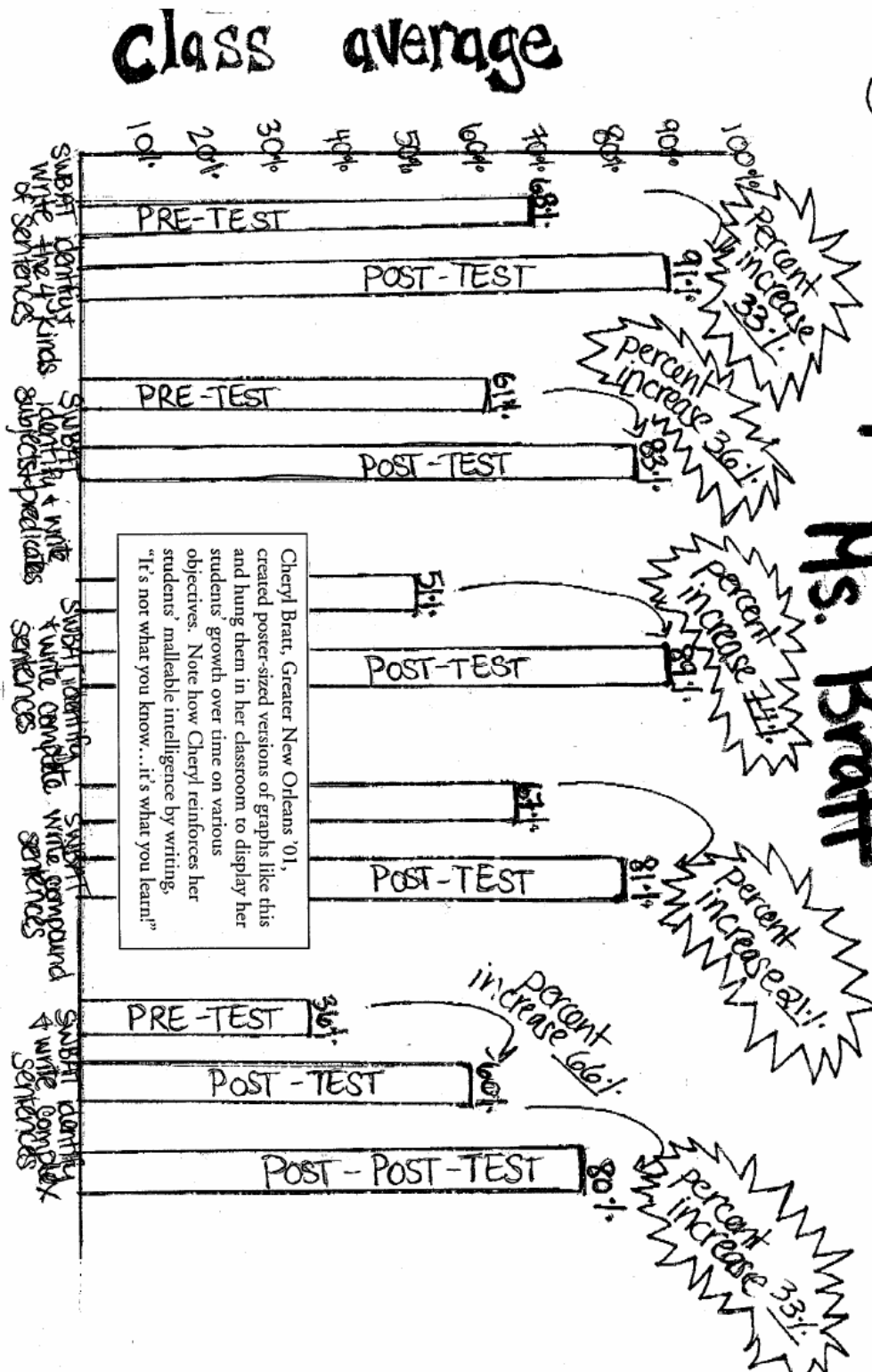


Keeping track!

Name: _____

Justin Meli, Houston '03, gives his third grade students this form so they can record their own mastery of math objectives. This student version corresponds to the tracking system Justin maintains for his entire class.

Charts That Track Progress Over Time



It's what
you know...
*
Grammar Gurus
1st Quarter
Ms. Bratt
*
It's what
you learn!
*

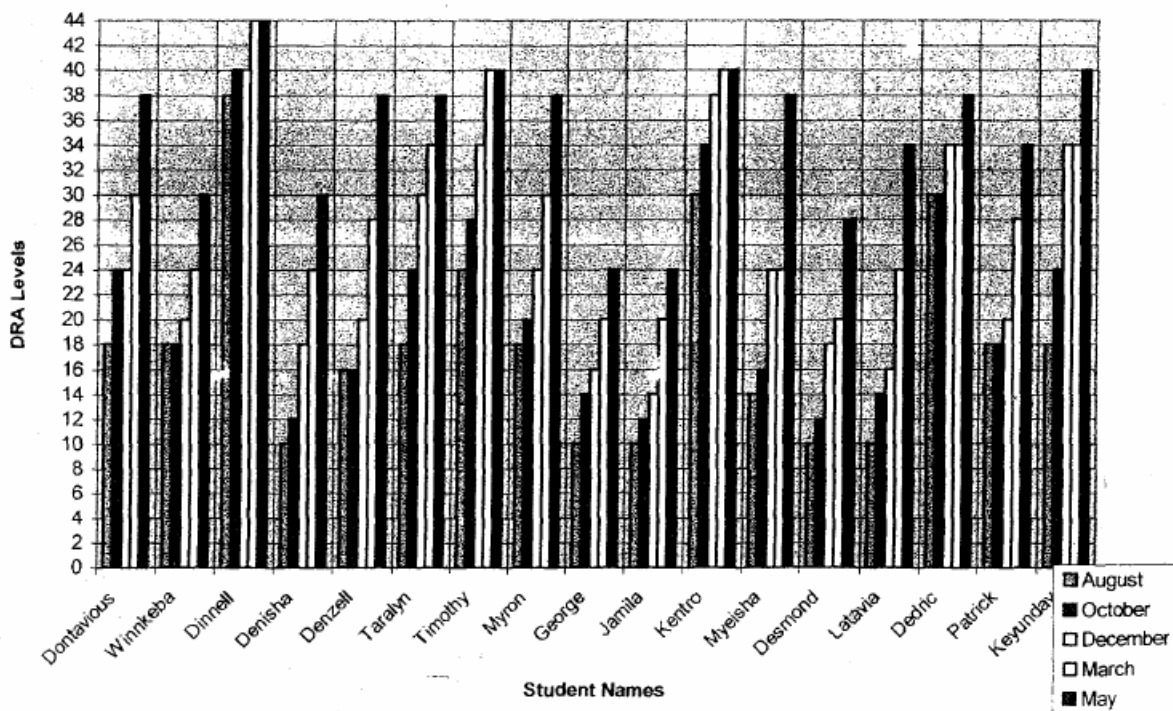
Instructional Planning & Delivery

Marisa Robertson, South Louisiana '00, monitors her students' growth using the DRA (Developmental Reading Assessment). At the beginning of the year, the reading level of her second graders ranged from low first grade (DRA = 10) to end of fourth grade (DRA = 38). By the end of the year, all students had improved and reading levels ranged from mid second grade (DRA = 24) to fifth grade (DRA = 44).

Student DRA Scores 2002-2003

Name	August	October	December	March	May
Dontavious	18	24	24	30	38
Winnkeba	18	18	20	24	30
Dinnell	38	40	40	44	44
Denisha	10	12	18	24	30
Denzell	16	16	20	28	38
Taralyn	18	24	30	34	38
Timothy	24	28	34	40	40
Myron	18	20	24	30	38
George	10	14	16	20	24
Jamila	10	12	14	20	24
Kentro	30	34	38	40	40
Myeisha	14	16	24	24	38
Desmond	10	12	18	20	28
Latavia	10	14	16	24	34
Dedric	30	30	34	34	38
Patrick	18	18	20	28	34
Keyunday	18	24	34	34	40
Average	18.23529	20.94118	24.94118	29.29412	35.05882

Student DRA Scores 2002-2003



Sample Report Card



DISTRICT OF COLUMBIA PUBLIC SCHOOLS

4TH GRADE REPORT CARD SY _____

(Page one of three)

Student Name: _____

ID#: _____

School: _____

Teacher: _____

Advisory _____ 1st 2nd 3rd 4th

READING

Uses word attack skills & vocabulary building strategies _____

Learns and uses new vocabulary _____

Reads and comprehends 25 books _____

Identifies character, setting, plot, theme and climax in stories _____

Reads & comprehends everyday materials (e.g. schedules, ads) _____

WRITING

Writes narrative _____

Writes report, using at least two sources _____

Writes response to literature _____

Uses correct grammar, capitalization & spelling _____

Uses writing process _____

LISTENING SKILLS

Exhibits appropriate audience behavior _____

Comprehends oral presentations _____

SPEAKING SKILLS

Summarizes orally what is read or written _____

Participates in group discussions _____

Presents oral report _____

INSTRUCTIONAL LEVEL	above level	on level	below level
Reading			
1st Advisory	—	—	—
2nd Advisory	—	—	—
3rd Advisory	—	—	—
4th Advisory	—	—	—
Mathematics			
1st Advisory	—	—	—
2nd Advisory	—	—	—
3rd Advisory	—	—	—
4th Advisory	—	—	—

Advisory _____ 1st 2nd 3rd 4th

MATHEMATICS

Recalls basic multiplication and division facts _____

Computes using whole numbers _____

Compares & orders whole numbers, fractions and decimals _____

Adds & subtracts fractions _____

Adds & subtracts decimals _____

Applies rounding _____

Measures area, perimeter & volume _____

Compares and contrasts geometric shapes and figures _____

Writes expressions and equations to solve problems _____

Reporting Key:

For overall grade in subject area:

4 = Exceeds the standard (Advanced)

Student takes initiative to exceed the standard; consistently produces excellent work, applying skills/concepts correctly; shows creativity and insight.

3 = Meets the standard (Proficient)

Student produces work that meets the standard, frequently produces very good work of high quality; applies skills/concepts correctly.

2 = Approaches the standard (Basic)

Student shows a basic working knowledge of skills/concepts; produces satisfactory work; usually applies skills/concepts correctly.

1 = Does not meet the standard (Below Basic)

Student does not show basic working knowledge of skills/concepts; seldom produces work of satisfactory quality.

For skills/expectations within subject area:

+ = Excellent

-- = Unsatisfactory

√ = Satisfactory

NI = Not Introduced

Instructional Planning & Delivery



DISTRICT OF COLUMBIA PUBLIC SCHOOLS				
4TH GRADE REPORT CARD				
(Page two of three)				
Student Name: _____				

Advisory	1st	2nd	3rd	4th
----------	-----	-----	-----	-----

SOCIAL STUDIES

Demonstrates map & globe skills _____

Describes the physical geography of the United States _____

Names and locates the regions of the U.S., their states & capitals _____

Explains the relationship among people, places & environment _____

Describes the contributions of diverse groups to American culture _____

SCIENCE

Plans and conducts experiments to answer questions _____

Describes conditions necessary to sustain life _____

Explains changes in Earth's features caused by natural forces _____

Describes factors that affect weather & seasonal change _____

Illustrates food chains and recycling of materials in nature _____

Describes effects of common forces (gravity, magnetism) on objects _____

MUSIC

Identifies music of various composers, cultures, styles & forms _____

Interprets music through singing, listening, performing & writing _____

Recognizes basic music symbols _____

ART

Applies different media, techniques & processes in artworks _____

Describes the use of symbols & images to identify different artists' styles _____

HEALTH & PHYSICAL EDUCATION

Distinguishes between safe and harmful behaviors in relationships _____

Displays rhythmic skills in various dance activities _____

Describes & demonstrates strategies for improved fitness _____

For the section on WORK HABITS, PERSONAL & SOCIAL SKILLS, the following key is used:

- + = Excellent
- √ = Satisfactory
- = Unsatisfactory

Advisory	1st	2nd	3rd	4th
----------	-----	-----	-----	-----

WORK HABITS

Follows directions _____

Completes classwork on time _____

Works well with others/cooperates _____

Uses time wisely _____

Completes and returns homework _____

Participates in class discussions _____

Makes an effort _____

PERSONAL & SOCIAL SKILLS

Follows classroom rules _____

Follows playground/school rules _____

Respects the rights/property of others _____

Listens while others speak _____

Practices self-control _____

ATTENDANCE

Days of Instruction	1st	2nd	3rd	4th
---------------------	-----	-----	-----	-----

Days Absent _____

Days Tardy _____

SUPPORT SERVICES Check where applicable. Additional comments from support staff attached.

Resource: Reading _____

Resource: Mathematics _____

Special Education _____

Bilingual/ESL _____

Grade Next Year _____

Revised 2000-2001

Additional Resources

Google for Educators

www.google.com/educators

**BLANK PAGE (FRONT AND BACK): INSERT
COLORED SEPARATOR HERE**

Instructional Planning & Delivery

Related Readings 

The Art of Questioning

Dennis Palmer Wolf

[This article was originally a talk delivered at the Summer Institute of the College Board's Educational Equality Project, held in Santa Cruz, California, July 9-13, 1986. At the institute more than one hundred high school and college teachers convened to consider how concerns raised by the education reform movement can be translated into improvements in everyday teaching practice. One topic given particularly close attention was that of questioning in the classroom. Dennie Wolf's remarks provided the keynote for these deliberations, and the version of her talk presented here has been expanded slightly to take into account questions raised by institute participants.]

The observations that appear in the article come from classrooms Wolf visited while working as a consultant to the College Board's Office of Academic Affairs and as a member of a research project on assessment in the arts currently funded by the Rockefeller Foundation. She especially thanks teachers in Boston, Cambridge, Los Angeles, Pittsburgh, and St. Paul for their generous cooperation. Wolf works with Project Zero, Harvard University Graduate School of Education.]

Ask a teacher how he or she teaches and, chances are, the answer is, "By asking questions." However, if you go on and ask just how he or she uses questions or what sets apart keen, invigorating questioning from perfunctory versions, that same teacher might have a hard time replying. In itself this is no condemnation — there are many occasions when we do magnificently without explicit knowledge: Few of us can explain transformational grammar, but we can form questions, all the same. A major league pitcher is sure of dozens of algorithms for trajectory, though his theory is as much in his elbow as on the tip of his tongue.

Still, a growing body of observation and research suggests that teachers' uncertainty about how they question cannot, or should not, be explained simply as a lack of explicit knowledge. Consider several observations that have emerged from recent educational research:

- There are many classrooms in which teachers rarely pose questions above the "read-it-and-repeat-it" level. Questions that demand inferential reasoning, much less hypothesis-formation or the creative transfer of information to new

situations, simply do not occur with any frequency (Gall 1970; Mills, Rice, Berliner, and Rousseau 1980).

- The questions and answers that do occur often take place in a bland, if not boring or bleak, intellectual landscape, where student answers meet only with responses from teachers at the "uh-huh" level. Even more sobering is the observation that teachers' questions often go nowhere. They may request the definition of a sonnet, the date of Shakespeare's birth, the meaning of the word "varlet" — but, once the reply is given, that is the end of the sequence. Extended stretches of questioning in which the information builds from facts toward insight or complex ideas rarely take place (Goodlad 1984, Sadker and Sadker 1985).

- Classroom questions are often disingenuous. Some are rhetorical: "Are we ready to begin now?" Others are mere information checks — a teacher knows the answer and wants to know if students do, too. Missing from many classrooms are what might be considered true questions, either requests for new information that belongs uniquely to the person being questioned or initiations of mutual inquiry (Bly 1986, Cook-Gumperz 1982).

- The very way in which teachers ask questions can undermine, rather than build, a shared spirit of investigation. First, teachers tend to monopolize the right to question — rarely do more than procedural questions come from students (Campbell 1986). Second, the question-driven exchanges that occur in classrooms almost uniformly take place between teachers and students, hardly ever shifting so that questions flow *between* students. Moreover, classroom questioning can be exclusive. It can easily become the private preserve of a few — the bright, the male, the English-speaking (Erickson 1975, Erickson and Schultz 1981, Hall and Sandler 1982).

- Questions can embarrass, rather than inquire. They can leave a student feeling exposed and stupid, more willing to skip class than to be humiliated again (Bly 1986).

While this account of classroom questioning is grim, it is

In This Issue

The Art of Questioning	1
When Students Ask Questions	8
A Reporter's Questions	12

Particularly valuable for secondary teachers, this article on Formative Assessment outlines a number of questioning techniques that teachers can use to help students develop deep understandings of ideas.

also partial. In writing *Academic Preparation in the Arts* (College Board 1985) and working on a study of assessment in the arts funded by the Rockefeller Foundation, I have spent a number of hours in the back of classrooms. From there I have seen skilled teachers raise questions that ignited discussion, offer a question that promised to simmer over several days, or pursue a line of questioning that led to understanding. Those teachers suggest a counter-portrait of classroom questioning, one that contains detailed clues about how the language of classroom dialogue can be used to establish and sustain not just a momentary discussion but a lasting climate of inquiry. My examples happen to come from arts and humanities classrooms, but I can think of no reason why they should not apply in other subject areas as well — granting, of course, that transferring them may reveal interesting differences among subject areas.

However, before turning to these classroom observations, I want to suggest that the issue of what questions are asked and how they are posed is, or ought to be, part of a much larger inquiry. Currently, there is a deep concern about how — or even if — we teach students to think. There is startling evidence that many high school students cannot draw inferences from texts, distinguish the relevant information in mathematics problems, or provide and defend a thesis in an essay. We have apparently developed a system of education in which rote learning occurs early and inquiry late. We teach the skills of scribes and clerks, rather than authors and mathematicians (Reznick 1985, Wolf et al. in press). We have come to accept a view of education that sees the experience of schooling largely in terms of its power to produce employable, rather than intelligent, students and that suffers from basic confusion over the conflicts between pluralism and excellence (Lazerson 1986).

Embedded in this broad concern, however, there is — or ought to be — a second critique — one that points out that the situation of disadvantaged, minority, female, and handicapped students is still more dire (National Coalition of Advocates for Students 1985). For many of them, skills such as analysis, hypothesis testing, discussion, and essay writing may not just be taught late and meagerly — they may



Dennie Wolf, a keynote speaker at the institute, opened the discussion of questioning in the classroom.

be virtually unavailable. Hence, when we examine skilled questioning (or instruction of any kind), it is essential to learn from those teachers who understand how to engage a wide community of learners. As one college teacher put it, "It's not hard to teach philosophy to students who learned the rules of argument and evidence at the dinner table. That's a matter of dotting the i's and crossing the t's. The real issue is whether I can teach students who don't come already knowing."

Independent of whom they teach, skilled teachers question in distinctive ways: they raise a *range* of questions, they sustain and build *arcs of questions*, their inquiries are *authentic*, they inquire with a sense of *respect and decency*.

A Range of Questions

Thirty years ago, Benjamin Bloom (1956) suggested that the same information can be handled in more and less demanding ways — students can be asked to recall facts, to analyze those facts, to synthesize or discover new information based on the facts, or to evaluate knowledge. My own classroom observations suggest that there is an even greater range of challenging questions than Bloom's familiar taxonomy indicates:

Inference Questions. These questions ask students to go beyond the immediately available information (Bruner 1957). For example, a high school photography teacher held up a black-and-white portrait of a machinist taken by Paul Strand, and asked, "What do you know by looking at this photograph?" Through careful questioning and discussion his students realized that the image contained hints that implied a whole network of information: clues to content (where and when the photograph was taken), technique (where the photographer stood, where the light sources were located), and meaning or attitude (what Strand felt about industry and workers). To push beyond the factual in this way is to ask students to find clues, examine them, and discuss what inferences are justified.

Academic Connections is published three times a year by the Office of Academic Affairs, The College Board, 45 Columbus Avenue, New York, New York 10023-6917.

Editor: Robert Orrill, Associate Director for Academic Development.

Letters and suggestions for articles are welcome and should be sent to the editor at the above address.

Any nonprofit organization or institution is encouraged to reproduce articles from this publication in quantity sufficient for its own use, but not for sale, provided that the copyright notice be retained exactly as it appears here.

Copyright © 1987 by College Entrance Examination Board. All rights reserved. The "College Board" and the acorn logo are registered trademarks of the College Entrance Examination Board. Educational EQuality Project and EQuality are trademarks owned by the College Entrance Examination Board.

Interpretation Questions. If inference questions demand that students fill in missing information, then interpretive questions propose that they understand the consequences of information or ideas. One day when her English class was struggling to make sense of Frost's poem, "The Silken Tent," a teacher asked, "Imagine if Frost compared the woman to an ordinary canvas tent instead of a silk one — what would change?" Faced with the stolid image of a stiff canvas tent, students suddenly realized the fabric of connotations set in motion by the idea of silk — its sibilant, rustling sounds; its associations with elegance, wealth, and femininity; its fluid motions. In a similar spirit, during a life-drawing class, a teacher showed his students a reproduction of Manet's "Olympia" and asked them, "How would the picture be different if the model weren't wearing that black tie around her neck?" A student laid her hand over the tie, studied the image and commented, "Without the ribbon she doesn't look so naked. She looks like a classical model. With the ribbon, she looks undressed, bolder."

Transfer Questions. If inference and interpretation questions ask a student to go deeper, transfer questions provoke a kind of breadth of thinking, asking students to take their knowledge to new places. For example, the final exam for a high school film course contained this question: "This semester we studied three directors: Fellini, Hitchcock, and Kurosawa. Imagine that you are a film critic and write a review of "Little Red Riding Hood" as directed by one of these individuals."

Questions about Hypotheses. Typically, questions about what can be predicted and tested are thought of as belonging to sciences and other "hard" pursuits. But, in fact, predictive thinking matters in all domains. When we read a novel, we gather evidence about the world of the story, the trustworthiness of the narrator, the style of the author, all of which we use to predict what we can expect in the next chapter. Far from letting their students simply soak in the content of dances, plays, or fiction, skilled teachers probe for predictions as a way of making students actively aware of their expectations. For instance, as a part of preparing "The Crucible," a drama teacher suggested the following.

Teacher: Find a scene where you have an exchange with a character in the play. Then find a place where you can open up the dialogue and insert three or four new turns — ones you make up. I want half a page at least.

Student 1: Yeah, but it's all done.

Student 2: How can we know, anyway?

Teacher: You have all the evidence you need in the scene. What are you going to build on?

Student 1: It would have to be about the same thing.

Teacher: Mmmm mmm.

Student 2: They'd have to talk the same way they've been talking. I mean with the same kind of emotion. Also right for that character — just what they know.

Teacher: Okay, you're on.

Reflective Questions. When teachers ask reflective questions, they are insisting that students ask themselves: "How

do I know I know?": "What does this leave me not knowing?": "What things do I assume rather than examine?" Such questions may leave a class silent, because they take mulling over. Nonetheless, they eventually lead to important talk about basic assumptions. Consider how, at the end of the year, students often read the chapters in their texts that discuss non-Western music, art, or drama. Consider, too, the power of the following question, which a music teacher asked his class on a May afternoon: "What would it mean if I called all the music we've listened to up until now, "non-Eastern music?" With that, he lifted the grain of a whole set of usual assumptions and asked that students consider what is implicit in terms such as "non-Western" or "primitive."

An Arc of Questions

But simply posing a variety of questions hardly creates a climate for inquiry. At least as important is the way in which teachers respond to the answers their questions provoke. Thus, recent research (Sadker and Sadker 1985) suggests that too often students' replies meet with little more than a passing "uh-huh." Such responses can stop inquiry dead in its tracks. In place of such dead-end situations, skilled teachers give an exchange of questions a life-course. Across a long arc of questions and answers, they pursue an investigation in which simple factual inquiries give way to increasingly interpretive questions until new insights emerge. For an observer, there is an impression of a kind of mutually constructed improvisation unfolding (Mehan 1978, 1979). In this improvisation, teachers keep questions alive through long stretches of time, coming back to them days, even weeks, after they have first been asked.

Take, for instance, this exchange, which occurred between a teacher and a student, as the student worked on an essay about the meaning of Dr. T.J. Eckleberg in Fitzgerald's *The Great Gatsby*:

Session 1

Teacher: Who is Eckleberg?

Student: Not a real character, I mean, he's just a sign by the road.

Teacher: What's he doing in the story then?

Student: Well, Nick passes the sign when he drives to East and West Egg.

Teacher: When does he show up in the story — every time Nick goes driving that way?

(The student leafs through the book to pick out the instances.)

Teacher: So now what do you think?

Student: (looking over the list) The times he gets mentioned are when Nick's driving and thinking. Usually when something bad is about to happen or did just happen.

Session 2 (several days later)

Teacher: Why does Fitzgerald bother to mention the Eckleberg sign, when there are probably hundreds along the way?

Student: Maybe it's an odd sign. See, it's this giant pair of

glasses that are up there advertising an oculist, you know, an eye doctor.

Teacher: Why didn't Fitzgerald make Eckleberg a bumper sticker, instead of a billboard?

Student: 'Cause if he's a billboard he can look out.... He's like a god, up above everything.

Teacher: Why is he located out there between East and West Egg?

Student: Maybe 'cause it's like being stranded, like in heaven, away from things.

Teacher: Why do you think he's an oculist?

Students: (puzzled, slightly exasperated at being made to dig like this) Fitzgerald *said*... because he's an ad for an oculist. The guy who put him up there was an oculist.

Teacher: But it could have been a car dealer, too. Why those enormous yellow spectacles?

Student: Yeah...(pauses, thinking) Maybe that says something about the idea of watching and seeing....

It's not ordinary eyes, it's extraordinary eyes... like the eyes of God, he takes it all in.

Teacher: Remember what you said about *when* he shows up?

Student: When there's evil — like judgment.

This arc of questioning allows information to accrue a kind of satisfying depth and complexity. Gradually, the student pieces together an idea of Eckleberg as a watching god — looking out, being raised above, apart, as if in heaven, seeing all. It is almost as if the questions posed form a kind of catwalk of realizable possibilities along which a student can move toward new insights (Luria 1976, Vygotsky 1978, Wertsch, 1978).

The Authenticity of Questions

Many of the questions that occur in classrooms aren't genuine. Some — such as, "Will you please put away your brushes and paints?" — are purely rhetorical. Others — in fact, the majority — are insincere in another way. They are not requests for information the speaker genuinely needs; rather, they are checks to see if a student has the information a teacher already knows (Cook-Gumperz 1982). These covert commands and information checks are not necessarily bad — unless, of course, they are the only questions students hear. In that case, students lose the opportunity to see their teachers engaged in serious inquiry, in which questions function as *bona fide* tools for thinking and understanding.

One important occasion on which students see teachers ask genuine questions is when a teacher tries seriously and persistently to get to the bottom of what a student is after but cannot express or attain. Here is a student trying to write about why *To Kill a Mockingbird* is a good title for Harper Lee's novel. He has opened with Atticus's quote about not killing mockingbirds but cannot figure out how to get from the quote to the introductory paragraph of the essay.

Teacher: You have a quote and then you need to get into the part about what happens in the book, right?

Student: Yes (annoyed; he can smell that rewriting is coming).

Teacher: I think you need a transition between the two.

Student: I know, but I don't want to sound stupid by telling them (very slow and pedantic): This-is-my-bridge-between-these-two-thoughts.

Teacher: Is it the idea that you don't like or that it sounds so obvious?

Student: It sounds so dumb.... I don't want to be someone in the story.

Teacher: (not sure what he means yet) Let's think about a comfortable way for you to make the connection. What about if you have something like, "In the book, *To Kill a Mockingbird*, the central character, Atticus, says...." Then you will have started in your voice, and when you go back to explaining the quote, it won't be barging in?

Student: I can't be *in* the story.

Teacher: How's that you being *in* the story?

Student: It's me explaining something.

Teacher: But an essay is a place where you *do* explain.

Student: I just want to go on with what happens in the story. They'll understand the connection.

Teacher: Okay, how about saying something like, "In *To Kill a Mockingbird* two characters, Tom and Boo, are like the mockingbirds Atticus describes"?

Student: Okay, let me see what I can do. (He goes back to his desk and writes his own version of this transition.)

At the outset, the teacher is not sure what it means "to be in the story" or why that should be so troubling. But sticking with her instinct that it is troubling, she tries — through asking genuine questions — to pin down what is bothersome. Together she and the student struggle to explain what each values or wants for the opening of an essay. At one level their communication is not smooth or particularly effective, but at another the student hears his teacher asking questions to carve out mutual understanding.

One-on-one exchanges are not the only occasions on which genuine questions arise. For instance, in arts classes — as well as in history and science classes — there are often chances to study the way a particular experience is interpreted by different individuals: a trip to see a surrealistic interpretation of Hamlet or a breakneck performance of a Brahms symphony. Alternatively, teachers have the option of showing students that deep into adulthood people run into serious questions that may consume or puzzle them, or may give them deep pleasure to solve, or both. A particular dance teacher comes to mind. In talking about her teaching she says: "My students know I choreograph and perform outside of class. Every so often I run up against a problem in my own work — the dance and the music start to rub each other the wrong way, a dancer has qualities that begin to transform the part, or I feel the dance grinding and creaking in the same old ways. So I show it to them. I say to them, "This is going wrong. Watch it and tell me what you think."

Decent Questions

The way in which teachers question provides a kind of barometer for the social values of classrooms — particularly



High school and college teachers attending the EQ Summer Institute discussed how concerns raised by the education reform movement can be translated into improved teaching practice in day-to-day school classes.

questions of who can learn and who can teach. For instance, the way in which teachers question reveals whether they suspect learning flows only from a teacher or whether it can come from other students. In the following example (also found in *Academic Preparation in the Arts*) a teacher encourages students to exchange ideas about two shirts: one a polyester shirt printed with a sharp, yellow-and-black checkerboard pattern, the other an Apache overshirt of painted buckskin:

Ms. V (the teacher): By looking *just at the shirts*, what can you tell me about these cultures?

(Several students make contributions.)

Peter: The buckskin shirt was made in a culture that loves nature, and the polyester shirt was made in a culture that doesn't care about nature.

Ms. V: That's a big statement. What do you see in the shirt that lets you say that?

Peter: The polyester shirt hasn't got anything natural in it. The buckskin shirt is all natural: skin, hand-painted, looks to me like vegetable dyes.

Nava: Yes, but you could have a culture that loved nature but used plastics and chemicals to express it.

Peter: No, that's not what I mean.

Ms. V: Look again at the shirts. What else do you see that's evidence for your idea?

Nava: The images on the shirts. The modern one has got just black and yellow squares, nothing like plants or water. But the buckskin shirt has all those lines of raindrops and stars.

(She points to strips of painted and drop-like shapes in the border.)

Peter: But maybe those are just decorations. How do we know that those are raindrops? Maybe they are just patterns like the checkerboard in the other shirt.

Through their questions teachers have the power to offer opportunities for dialogue to particular groups of students or to withhold opportunities from them. Along these lines, in a 1982 study, Hall and Sandler found that, when compared to their female peers, young males are much more

likely to ask questions and to have them answered in a serious way. Minority students' participation in classroom discussion is similarly endangered. We know that sometimes there are culturally organized differences between classroom and home regarding the appropriateness of asking questions, the rules about who can be questioned, or what forms inquiries should take (Boggs 1972, Heath 1983). Yet, when minority students fail to join in classroom inquiry, teachers may interpret their hesitation, not as uncertainty about the rules of communication, but as lack of ability, and may cease to consider them valuable, contributing members of a class (Bremme and Erickson 1977, Erickson 1975, Erickson and Schultz 1981.)

Clearly, teachers can use questions to embarrass or to empower. For instance, questions can be designed to smoke out guilty parties — students who didn't do their homework, who fail to answer quickly enough, or who can't think on their feet. But it is equally possible to use questions to promote students' sense of themselves as knowledgeable and skilled. Thus, even though the student in the following example does not yet know what she thinks, her teacher takes her search quite seriously. In back of his questions is the assumption that the student can come to know.

(In a print-making class, a teacher leans over a large linoleum print with a student.)

Teacher: What's bothering you about it?

Student: I liked the idea, but I don't like the print.

Teacher: Let's track down where you lost it. Get out your portfolio.

(At this juncture they pull out the student's portfolio and turn to the sheaves of sketches and trial runs of the print.)

Teacher: Okay, page through these until you come to the one where things go wrong for the first time.

(The student studies the portfolio, finding the moment when the original incised-line print is cut away drastically, leaving only the outlines of the face.)

Student: That's where I don't like it.

Teacher: Have a careful look and tell me what exactly changed.

Student: I can't tell.

Teacher: Okay, talk out loud about each part of it, the hair, the sun, the neck — why are they there, what's in them, what do you want them to do?

Had there been a videotape of this exchange, it would have revealed still another level at which questions embarrass or empower: nonverbal *performance*. The teacher looks at the student when he poses questions; he studies the prints when she does; he respects, rather than cuts off, the student, even when she gropes for an answer; he waits for her to formulate a reply. Studies of just these kinds of subtle phenomena — such as, how long a teacher waits for a reply — indicate that small changes, even in the nonverbal integrity of questioning, can have measurable effects on the quality of classroom inquiry (Tobin 1986).

Then Why So Few Questions?

Teachers know questions to be one of their most familiar — maybe even one of their most powerful — tools. But if observations are accurate, much of classroom inquiry is low-level, short, even exclusive or harsh. Moreover, these qualities turn out to be remarkably resistant to change. Thus, an early study of questioning done in 1912 (Stevens 1912) found that two-thirds of classroom questions required nothing more than direct recitation of textbook information. Now, more than 70 years after the original study, research suggests that 60 percent of the questions students hear require factual answers, 20 percent concern procedures, and only 20 percent require inference, transfer, or reflection (Gall 1970).

Why is this the case? Here, ironically, where the vital issue of what fuels or explains these persistent patterns of questioning emerges, there is little or no research. But each time that I have talked with teachers about questioning, they have had explanations. While teachers freely admit they have colleagues who are simply not interested in the work of questioning, they also point out that there are hurdles even for the committed. Here, in their own words, are some things they have pointed out to me.

- It takes skill and practice to build a climate of inquiry, and there are few forums in which teachers can be helped in — or rewarded for — this endeavor.

"There are 34 students in the room. Some have read the story, others haven't; some understand, others are lost. It takes skill — lots of skill — to put together a discussion for those 34 people. Frankly, it is often easier for me to take charge."

- It is a formidable challenge to establish and maintain a climate of inquiry with students of widely varying backgrounds and skills.

"Questions work fine when you have students who have a set of prior skills — I mean, who know about listening to what someone else says, who can follow up with a question of their own, who are used to digging for information. But what do you do when you don't find that? Do you stop to teach it? And how do you teach it, anyway?"

"My classroom has everything in it: kids whose families have taught them the 'right' thing is to be quiet and respect the teacher, kids who argue for the sake of arguing, girls who take neatly indented notes and never say a word, boys who like hearing themselves talk. How do you make it work for all of them?"

- But even with such problems as class size and diversity, teachers rarely cite students as the major obstacle. Instead, they describe the culture of schools as one that dampens their *own* investment in inquiry.

"Don't forget that teachers live day in and day out in a school culture. That culture teaches. In most places it teaches you to suspect that there is nothing to learn from students. It puts textbooks — not primary sources — in your hands. Textbooks make for the recitation of facts. It's a culture that puts coverage above all. You have to cover all of *Macbeth* in twelfth-grade English, never mind how your students read. You have to get through WWII. What textbooks start, tests often enforce. In that world, questions, especially big messy ones, are dangerous. You have to keep too many of them from happening."

So what do these interested teachers want? Concretely, they ask for time and opportunity to think about their classes as moments of joint inquiry — time to observe skilled colleagues in action, time to see themselves on videotape, time to think through not just lesson plans, but process plans: when to ask, who to ask, and above all, how to ask and respond (Kasulis 1986). Teachers want not just to hear about how "prejudicial teacher questioning patterns" are, they want time to grapple with equity and excellence issues head-on, at the level of values and ethics. And, most profoundly, skilled teachers want to be engaged in inquiry themselves. Teachers want to join with scholars to think about curriculum, as occurs in the Yale-New Haven Teachers Institute and in the university-school collaborations of the Los Angeles-based Humanitas Academy. They want to have their own skills probed and honed in the way that the Bay Area Writing Program and the Dialogue program in St. Paul do by offering them (not just their students) time to write. Simply put, many teachers want to learn about the skills demanded in questioning and other forms of inquiry — but they want to learn in ways that will sustain their own abilities to inquire and reflect about their own subjects of interest.

Why Question?

These examples suggest their own reasons for why we must bother about questions despite the obstacles. Let me further venture that there may be two additional outcomes of fine questioning that often escape the notice of traditional measures of classroom achievement.

First, there is a social outcome — students need the face-to-face skill of raising questions with other people: clarity about what they don't understand and want to know; the willingness to ask; the bravery to ask again. It is as central in chasing down the meaning of a dance, the lessons of the Korean war, or the uses and abuses of nuclear reactors. One could rephrase the Chinese proverb: Ask a man a question

and he inquires for a day: teach a man to question and he inquires for life.

And, second, there is a creative or inventive outcome. Being asked and learning to pose strong questions might offer students a deeply held, internal blueprint for inquiry — apart from the prods and supports of questions from *without*. That blueprint would have many of the qualities that teachers' best questions do: range, arc, authenticity. But if the sum is greater than the parts, there might be an additional quality — call it a capacity for question finding (Getzels and Csikszentmihalyi 1976). Question finding is the ability to go to a poem, a painting, a piece of music — or a document, a mathematical description, a science experiment — and locate a novel direction for investigation. This ability is difficult to teach directly, yet it may be one of the most important by-products of learning in an educational climate in which the questions asked are varied, worth pursuit, authentic, and humanely posed. Here Gertrude Stein comes to mind. As she lay ill, someone approached and asked, "What is the answer?" and she — so legend has it — had the energy to quip, "What is the question?"

Bibliography

- Bloom, B. (ed.) *Taxonomy of Educational Objectives. Handbook 1: Cognitive Domain*. New York: David McKay, 1956.
- Bly, C. "Using Social Work Techniques in Classroom Discussions." A talk given at the Second Annual Teachers and Writers Institute, sponsored by Dialogue Program of COMPAS, St. Paul, Minnesota, October 10-11, 1986.
- Boggs, S. "The Meaning of Questions and Narratives to Hawaiian Children." In C. Cazden, V. Johns, and D. Hymes (eds.), *Functions of Language in the Classroom*. New York: Teachers College Press, 1972.
- Bremme, D.W., and F. Erickson. "Relationships among Verbal and Nonverbal Classroom Behaviors," *Theory into Practice*, 16 (3), 1977, 153-61.
- Bruner, J. "Going beyond the Information Given." In J. Bruner et al. (eds.), *Contemporary Approaches to Cognition*. Cambridge, Massachusetts: Harvard University Press, 1957.
- Campbell, D. "Developing Mathematical Literacy in a Bilingual Classroom." In J. Gumperz (ed.), *The Social Construction of Literacy*. New York: Cambridge University Press, 1986.
- College Entrance Examination Board (Dennis and Thomas Wolf, principal consultants). *Academic Preparation in the Arts: Teaching for Transition from High School to College*. New York: College Entrance Examination Board, 1985.
- Cook-Gumperz, J. "Communicative Competence in Educational Perspective." In L. Cherry-Wilkinson (ed.), *Communicating in the Classroom*. New York: Academic Press, 1982.
- Erickson, F. "Gatekeeping and the Melting Pot," *Harvard Educational Review*, 45 (1), 1975, 40-77.
- Erickson, F., and J. Schultz. "When Is a Context? Some Issues and Methods in the Analysis of Social Competence." In J. Green and C. Wallat (eds.), *Ethnography and Language in Educational Settings*. Norwood, New Jersey: Ablex, 1981.
- Gall, M. "The Use of Questions in Teaching," *Review of Educational Research*, 40, 1970, 707-20.
- Getzels, J., and M. Csikszentmihalyi. *The Creative Vision: A Longitudinal Study of Problem Finding in Art*. New York: Wiley, 1976.
- Goodlad, J. *A Place Called School*. New York: McGraw-Hill, 1984.
- Hall, R., and B. Sandler. *The Classroom Climate: A Chilly One for Women?* Association of American Colleges, 1982.
- Heath, S.B. *Ways with Words*. New York: Cambridge University Press, 1983.
- Kasulis, T. "Questioning." In M.M. Gilette (ed.), *The Art and Craft of Teaching*. Cambridge, Massachusetts: Harvard University Press, 1986.
- Lazerson, M. "A Review of 'A Study of High Schools,'" *Harvard Educational Review*, 56 (1), 1986, 37-48.
- Luria, A.V. *Cognitive Development: Its Social and Cultural Foundations*. Cambridge, Massachusetts: Harvard University Press, 1976.
- Mehan, H. *Learning Lessons: Social Organization in the Classroom*. Cambridge, Massachusetts: Harvard University Press, 1979.
- Mehan, H. "Structuring School Structure," *Harvard Educational Review*, 48 (1), 1978, 32-64.
- Mills, S.R., C.T. Rice, D.C. Berliner, and E.W. Rousseau. "The Correspondence between Teacher Questions and Student Answers in Classroom Discourse," *Journal of Experimental Education*, 48, 1980, 194-204.
- National Coalition of Advocates for Students. *Barriers to Excellence: Our Children at Risk*. Boston: National Coalition of Advocates for Students, 1985.
- Reznick, L. "'Low' and 'High' Forms of Literacy." A report to the National Institutes of Education, 1985.
- Sadker, D., and M. Sadker. "Is the O.K. Classroom O.K.?" *Phi Delta Kappan*, January 1985.
- Stevens, R. "The Question as a Measure of Efficiency in Instruction: A Critical Study of Classroom Practice," *Teachers College Contributions to Education*, 48, 1912.
- Tobin, K. "Effects of Teacher Wait Time," *American Educational Research Journal*, 23(2), 1986, 191-200.
- Vygotsky, L.S. *Mind in Society: The Development of Higher Psychosocial Processes* (trans. Michael Cole et al.). Cambridge, Massachusetts: Harvard University Press, 1978.
- Wertsch, J. "Adult-Child Interaction and the Roots of Metacognition," *The Quarterly Newsletter of the Institute for Comparative Human Cognition*, 1 (1), 1978, 15-18.
- Wolf, D., et al. "Beyond A, B, C: Deeper and Broader Conceptions of Literacy." In A. Pellegrini (ed.), *The Psychological Bases of Early Education*. London: John Wiley Sons, in press.



As you read this article in preparation for a session on Formative Assessment over the summer, think about the ways in which the teacher could have improved her checks for understanding.

Restructuring in the Classroom

Teaching, Learning, and School Organization

Richard F. Elmore

Penelope L. Peterson

Sarah J. McCarthy



Jossey-Bass Publishers • San Francisco 1996

pgs 99-103

so it's got to be a subtraction, so they'll have to do the CM for that and, you know, they have to kind of puzzle it and piece it together, and it ends up being fun, but it also ends up kind of being a skill they can tackle real well, and then it helps with place value but, you know, they have to do it in place value. You just can't write it up without thinking of place value. You or I could because we've been doing it awhile but they have to stop and they have to labor through it, one place at a time, the thousands, the hundreds, the tens, and the ones.

By looking over Griffin's shoulder at the teacher's guide for the D. C. Heath mathematics textbook from which the homework sheets came, one can gain a different perspective. Those authors give the teacher the following directions:

Review briefly the concept of place value. Tell the students that the ancient Romans had a system for naming numbers that did not use place value. In the Roman system, there are only seven symbols:

I	V	X	L	C	D	M
1	5	10	50	100	500	1,000

Explain that the Romans wrote symbols side by side and often added the values (D. C. Heath, p. 16).

A page in the student text for this lesson also gives this same information and states explicitly for the student that "The Romans did not have a place-value system. They wrote the symbols side by side and usually added the values."

A Lesson on "Place Value" in Melissa Benton's Mathematics Classroom

When we visited Melissa Benton's mathematics class the day after we observed Joanna Griffin's classes, we found that Benton's class was also spending time "working on place value" as their teacher described it. Benton began by writing the following on the board:

MILLIONS HUNDRED THOUSANDS TEN THOUSANDS
THOUSANDS HUNDREDS TENS ONES

Benton then asked the whole class if they remembered yesterday when they "were trying to read numbers with words" and to figure out "what was the right way." She announced that because it was "el tough amundo" (very difficult), she had made up a game for them to use today to figure out how "to reason out numbers and to write them the right way." She then asked the class to tell her "the places" that they knew of. Pointing to the words on the board, she had the students read the names of the places in unison. The students yelled out in unison: "Ones, tens, hundreds, thousands, ten thousands, hundred thousands, millions!"

Benton then posed this question to the class: "There are twenty-five people in the class. How many people will be on each team?" As soon became apparent, she was posing this as an authentic problem because she wanted to divide the class of twenty-five second-grade students into two teams for the subsequent activity.

Giving them a clue, Benton then asked, "Is twenty-five even or odd?" Half the students yelled out "even," and half the students called out "odd."

Giving the students another clue, Benton continued: "It ends in five." At that, Andrew called out, "odd." Picking up immediately on Andrew's response, she agreed that five was odd, so twenty-five was also odd. She then told them that one team was going to have one student more than the other, and she asked again how many people were going to be on each team. Charles suggested that there would be thirteen students on one team, and the other team would have fourteen students. Denise volunteered the answer "twelve and thirteen." Picking up on Denise's correct answer, Benton agreed that one team would have thirteen and one would have twelve students. She proceeded to form the class into two teams by taking the two rows on one side of the room to form one team and the two rows on the other side of the room to form the second team. She told them that one team would have twelve, and one team would have thirteen, but that would be "OK." Meanwhile, sitting at her seat, Angela was still figuring out how to divide the twenty-five students into two teams. She looked puzzled and suggested that "they move one girl." Rather than asking Angela what she meant and trying to figure out how Angela was thinking about the problem, Benton asked her, "What's twelve plus twelve?" Angela replied, "twenty." Benton responded, "Let's say one person

was absent. Twelve plus twelve would be . . ." Benton left the sentence hanging. After Angela replied correctly, Benton affirmed, "twenty-four," and then added, "We've got one extra—twenty-five." Although Angela still look puzzled, Benton turned to the whole class and began the "game."

Benton announced that two people from each team would come to the board. She would give each team the same number written on a strip of paper. The team members' job was to tell her "the right way to write the number." The first team to write the number correctly in numerals on the board would get a point. She then pronounced the first number as she gave the number to the teams written on strips of paper: "seven hundred forty-two thousand."

On the board, team one wrote 700,4200 and team two wrote 742,000. Turning to the class, Benton asked the students which one was right. Most of the children put up two fingers indicating they thought team two was correct. After a two-second pause, she continued with the class by saying, "Team two's right, and let me show you why."

Benton then corrected team one's number on the board by adding a comma as follows: 7,004,200. She then had the class read it aloud with her. A student began, "seven hundred," but was quickly corrected by other students who called out, "seven million." Benton added, "four . . ." A student picked that up and said, "hundred," but she corrected him, saying, "thousand," and concluding with "two hundred."

Benton then read team two's number, saying, "Seven hundred forty-two thousand, and there's no hundreds and there's no tens. Okay? Look what it looks like. Everyone read this number."

At her command, the class read the number, chanting in unison: "seven hundred, forty-two thousand."

Benton then read the next number for the teams and told the rest of the class to write the number on their papers. She pronounced, "five hundred fifty thousand." Team one wrote 5,0050, and team two wrote 55,000. She announced that they were "both wrong" and they should "go back" to the board.

She gave them a clue that they should have six numbers. The teams returned to the board and pondered some more. Finally, Benton repeated, "five hundred fifty thousand," adding: "There's

no hundreds, there's no tens; there's no ones. Five hundred fifty thousand," she repeated yet again. After a pause, she commented, "This is a tough one. This one we got stumped on yesterday. It is straight from the book."

This time, team one wrote *500,000* and then erased it. Both teams then wrote *500,500*.

Turning to the class, Benton asked them what both teams had written up there. One student replied, "five hundred and five hundred." She corrected him by saying, "five hundred thousand, five hundred." But she added, "I want it to be five hundred *fifty* thousand."

Team one then wrote *500,5,000*.

At this point, except for the four students at the board, the others in the class were squirming in their seats and appeared disgruntled from the task. Benton admonished them: "Sh! Boys and girls, be patient!" Turning to the teams, she then encouraged the four students at the board by saying, "You're all gettin' close. Team one's gettin' close." The teams continued to write and erase what they had on the board. Finally, team one wrote *550,000*. She immediately called out, "Congratulations!" indicating that team one was correct. Then she added, "That was a tough one!"

Benton then went to the board herself and covered a part of the number so that only *550* was showing. She told the class that "if there were no zeros, it would say 'five hundred fifty.' But because it's in the thousands place, we say 'five hundred fifty . . .'" She allowed the students to complete her sentence by chorusing in unison: "thousands!" Benton then told the students again that "that was a tough one" and cautioned them that she might "pick this one again" for them to do. A few minutes later, after team two had correctly written *three hundred thousand* as *300,000*, she did indeed give them the same one again, asking the teams to write "five hundred fifty thousand."

Quickly both teams wrote *550,000* on the board. They did it so rapidly that it was difficult to determine who got it right first. She declared that they both were right, but that team one got it right "by a hair."

Benton continued the game for another several minutes. Soon all the children sitting at the desks were talking and paying scant attention while the four team members at the board struggled to

write the correct number. Finally, all students on each team had taken a turn at the board, and team one was declared the winner.

Benton then passed out the "general materials boxes" to each student. The boxes contained cups, beans, and a sock. She had each student take the sock, which was to be used as an eraser. Then she handed each student a small blackboard and a piece of chalk. For the remainder of the period, Benton read numbers aloud to the students, and each student was to write the numeral for the number on their chalkboard. Then the student was to "check with their neighbor and see if they got it right. If not, the neighbor [should] tell them how to do it."

Matthew, a blonde boy wearing a Bart Simpson shirt, helped Isaiah, an African American boy, telling him how to write the number. Isaiah appeared to continue to have trouble throughout this activity. For example, Isaiah wrote *380000* for the number *thirty thousand eight hundred*; he later erased it and wrote *30,800* when he saw what everyone else had written. When Benton had the students put their materials away, she stopped by Isaiah's desk and talked with him about his inattentive behavior during class that day.

The class concluded for the day with the playing of a music tape on which the singer sang aloud the multiplication facts. Everybody, including Benton, sang along. At the end of the tape, the singer sang a quiz. As each multiplication fact was posed, the students sang out the answers with gusto.

ACTIVITY 1:

Trying It Out

Materials Needed

The following materials are provided in this folder:
Problem: Day Care Center
Scoring Guide
Samples of Student Work: Fence Configurations

Intended for a session this summer on Unit Planning, this exercise offers a complex performance task for students to tackle. Think about all of the skills that a student would need to master in order to complete this task successfully—and how your students could move toward an analogous achievement in your subject area and grade level.

Introduction

Only by trying a performance task ourselves can we appreciate what we are asking of our students. This activity helps you do just that.

Procedure

1. The performance task below assesses middle school mathematics students' skill in computation and pattern recognition. Give it a try before looking at the scoring rubric and the samples of student work on pages 3–6.
2. Share your answers and methods with others in your group. Did you get the same answer? Did you approach it in the same manner?
3. Now, examine the rubric and samples of student work. How does your work compare with theirs? How would you evaluate their work using the rubric?
4. Discuss the experience with your colleagues. You may want to consider issues such as:
 - How does this type of question challenge your understanding of mathematical principles?
 - Does writing about how you solved a math problem demand greater understanding of mathematics than just solving the problem?
 - In what ways do the students' approaches to the problem surprise you?

DAY CARE CENTER

Directions to the Student:

You have been hired by a day care agency to fence in an area for a playground. You have been given 60 feet of fencing (in 4-foot sections) and a 4-foot gate. How can you put up the fence so the children have the maximum amount of space in which to play?

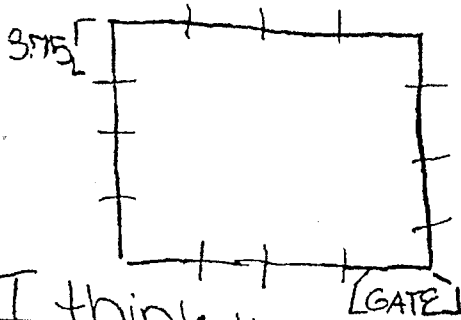
1. Try several different shapes that can be made with the fencing and calculate their areas. Make pictures of these shapes, including a scale drawing of the best shape.
2. Write a brief summary that describes which shape you think will have the largest area and why.
3. Imagine that the fencing is flexible and can be bent. What shape would have the greatest area then?

Adapted from *A Collection of Performance Tasks and Rubrics*, by Charlotte Danielson.
Copyright 1997, Eye on Education, 6 Depot Way West, Larchmont, NY 10538; (914) 933-0551.

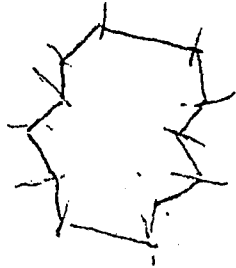
SCORING GUIDE

	Level One	Level Two	Level Three	Level Four
Approach	Approach is random; only one solution found	Approach not very systematic, but several shapes are compared	A systematic approach is possible to discern from the student work	Highly systematic approach; well presented
Accuracy	Many computational errors	A number of computational errors and/or formulae improperly applied	Very few computational errors; formula correctly applied	In addition, the work is neat and well presented
Drawing	Sloppy and unclear; many errors	Drawing is mostly clear; some errors in scale and/or labeling	Drawing is clear and accurate, with the correct scale	In addition, the drawing is neat and well presented
Explanation	Unclear; no recognition of patterns in varying the area and perimeter	Explanation hesitant; some recognition of patterns.	Clearly written; recognition of one aspect of relationship: number of sides or regularity.	In addition, recognition of both elements of relationship: number of sides and regularity

Fence Configurations by Students



I think that the square has the most area, with 225 sq. ft.



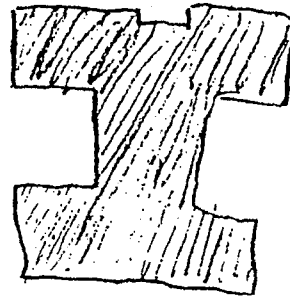
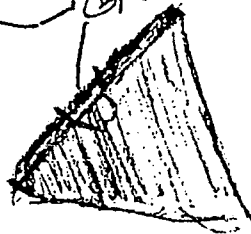
GATE



GATE



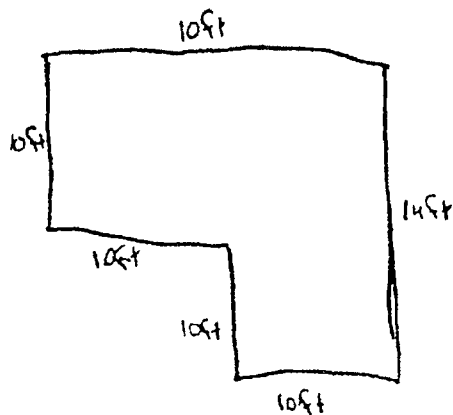
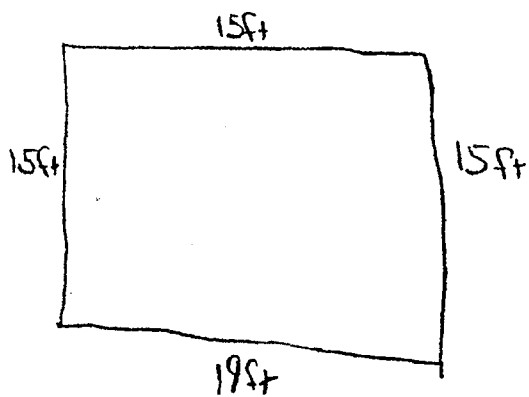
GATE



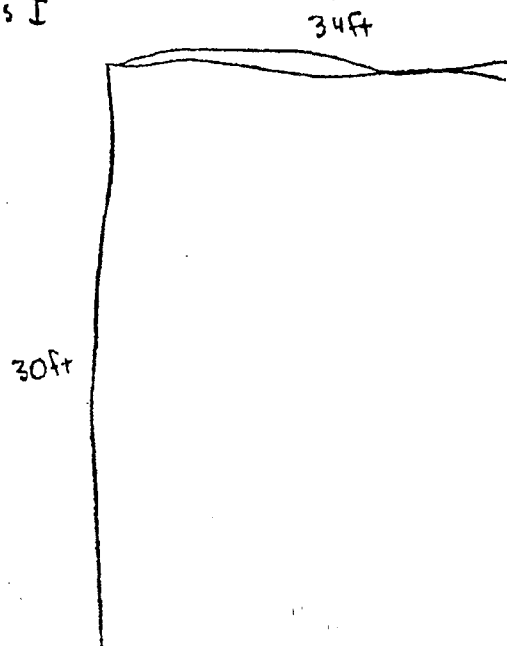
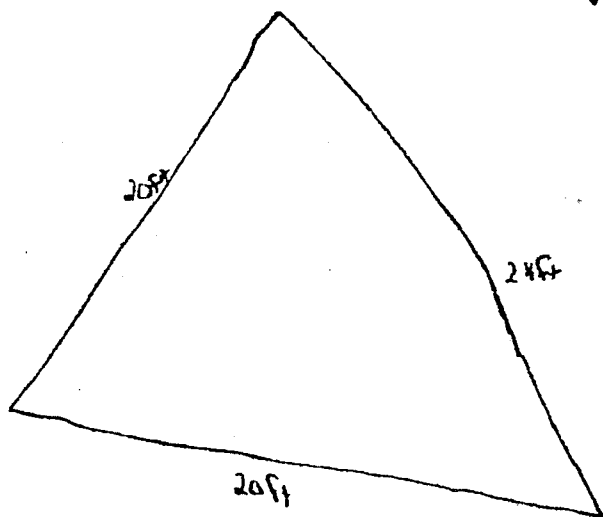
4 $\sqrt{3.75}$



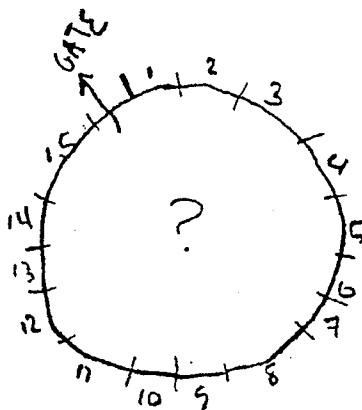
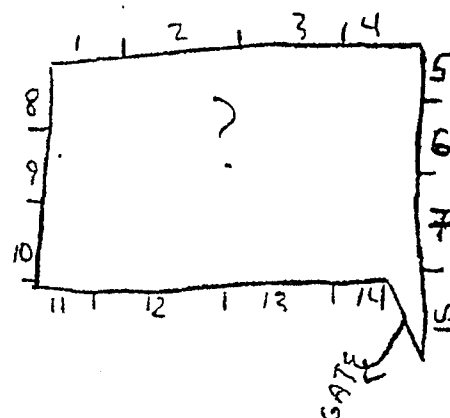
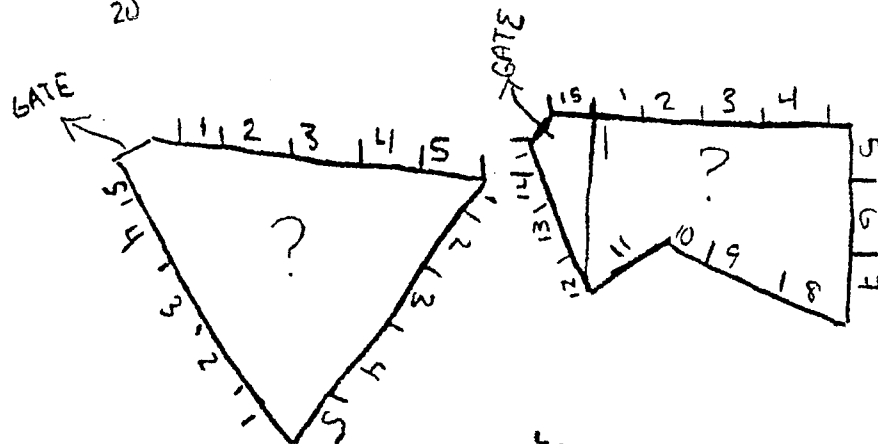
AC-A circle would have the most area.



I think that the triangle will be the biggest because the walls are bigger and the area inside is bigger than all the ones I tried.



$$\begin{array}{r} 15 \\ \text{Total } 460 \text{ ft.} \\ -4 \\ \hline 20 \end{array}$$
 → 15 4ft fencing + 1 4ft gate



To be completely honest I have no idea what the answer is, or how to find it.

$$\begin{array}{r} 15 \\ 4 \overline{) 60} \\ \underline{-40} \\ 20 \\ \underline{-20} \\ 0 \end{array}$$

First, I divided 60 by 4 so that I could get the # of 4 foot sections total that would be in the fence.

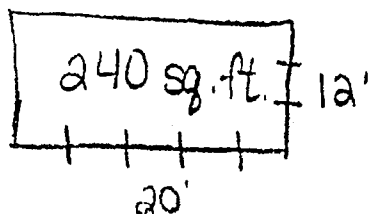
$$\begin{array}{r} 15 \\ +1 \\ \hline 16 \end{array}$$

I added 1 to my # of total sections so that the 4 foot gate could be included in my measurements.

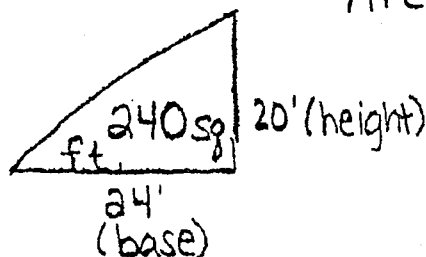
③ Third, I found the formulas for my certin shapes so that I could figure out the total area.

$$\begin{array}{r} 20 \\ \times 12 \\ \hline 40 \\ 200 \\ \hline 240 \end{array}$$

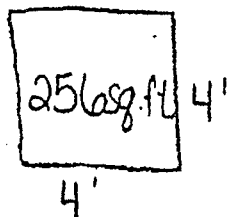
$$\text{area} = L \times W$$



$$\text{Area} = \frac{\text{base} \times \text{height}}{2}$$



$$\begin{array}{r} 24 \\ \times 20 \\ \hline 480 \\ 480 \\ \hline 480 \end{array}$$



$$\begin{array}{r} 16 \\ \times 16 \\ \hline 96 \\ 160 \\ \hline 256 \end{array}$$

$$\text{area} = L \times W$$

You can build the fence in a square to get the maximum amount of space to play in.